ORDER NO. AD9005114C2

Service Manual

Radio Cassette

Portable Stereo CD System

RX-DS20

Color

(K) .... Black Type

Area

Country Code	Areas	Color
(EB)	Great Britain	(K)
(EG)	Continental Europe Third Region	

RX-DS30 MECHANISM SERIES (AR300)

■ SPECIFICATIONS

General:

Power Requirement: AC; (EB)...240V, 50 Hz
(EG)...220 V, 50 Hz
Battery; 15 V (ten UM-1 Batteries)
(Panasonic UM-1/R20/LR20
or equivalent)
Back-up Battery; 6 V (four UM-3
Batteries)
(Panasonic UM-3/
R6/LR6 or
equivalent)
Power Consumption: 43 W (AC only)
Power Output: 45 W (22.5 W×2)...PMPO
Speaker: Woofer; 12 cm×2 PM Dynamic
speaker (2.7Ω)
Input: MIX MIC; 2.5 mV/200~600Ω, ∅3.5
AUX; 200 mV/47 kΩ
Output: HEADPHONES; 32Ω, ∅3.5
Dimensions: 666 (W)×187 (H)×217 (D) mm
Weight: 5.7 kg without batteries

CD Player Section:

Sampling Frequency: 44.1 kHz
D-A Conversion: 2 DAC 4 time over sampling
Beam Source: Semiconductor laser
(wavelength 780 nm)
No. of Channels: 2 channels, stereo
Frequency Range: 20~20,000 Hz (+1/−2 dB)
Dynamic Range: 95 dB (1 kHz)
S/N Ratio: 100 dB (1 kHz)
Wow and Flutter: Unmeasurable

Radio Section:

Frequency Range: FM; 87.5~108 MHz
MW; 522~1611 kHz
LW; 146~288 kHz
Intermediate Frequency: FM; 10.7 MHz
AM; 459 kHz
Sensitivity: FM; 3.5 μV/50 mW output
(−3 dB Limit Sens.)
MW; 90 μV/m/50 mW output
LW; 90 μV/m/50 mW output

Tape Deck Section:

Frequency Range: 50~16,000 Hz (with normal tape)
Recording System: AC bias (67 kHz), AC erase
Tape Speed: 4.8 cm/s
Monitor System: Variable sound monitor
Track System: 4-track 2-channel stereo recording and playback

Notes:

1. Weights and dimensions shown are approximate.
2. Design and specifications are subject to change without notice.

Panasonic

CAUTION:
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.

Wave length: 780 nm
Maximum output radiation power from pick up: 100 µW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

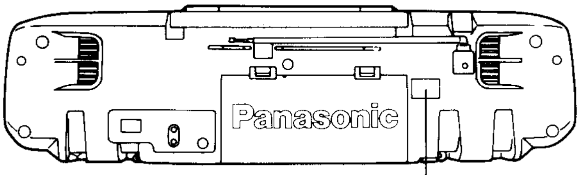
1. Do not disassemble the optical pick up unit, since radiation from exposed laserd diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

Wellenlänge: 780 nm
Maximale strehlungsleistung der lasereinheit: 100 µW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.



CLASS 1
LASER PRODUCT

LUOKAN 1 LASERLAITE

DANGER-Invisible laser
radiation when open
and interlock defeated.
AVOID DIRECT EX-
POSURE TO BEAM.

(Inside of product)

VORSICHT-Unsichtbare
Laserstrahlung, wenn
Abdeckung geöffnet und
Sicherheitsverriegelung
überbrückt. Nicht dem
Strahl aussetzen.

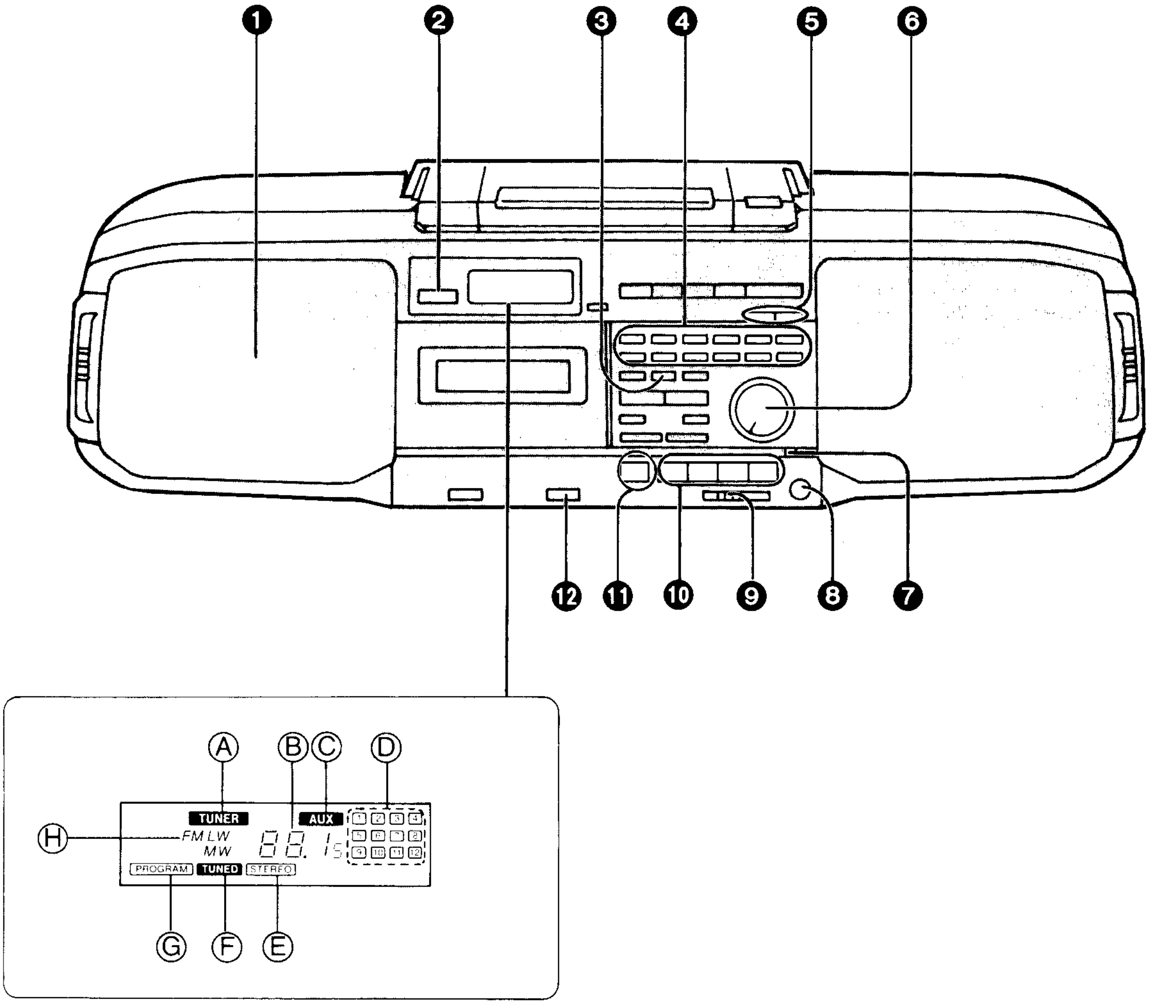
(Im Inneren des Gerätes)

ADVARSEL: USYNLIG LASERSTRÅLING
VED ÅBNING, NÅR SIKKERHEDSAF-
BRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.

(Indersiden at apparatet)

■ LOCATION OF CONTROLS

●TUNER/GENERAL CONTROLS



TUNER/GENERAL CONTROLS

❶ **Speakers (12 cm, 2.7Ω)**

❷ **Remote Control Sensor (REMOTE SENSOR)**

❸ **Preset Memory Button (PROGRAM)**

❹ **Preset Tuning Buttons (1–12)**

❺ **Tuning Buttons (TUNING)**

❻ **Volume Control (VOLUME)**

❼ **AC Connection Indicator**

❽ **Headphones Jack (PHONES) (∅3.5, 32Ω)**

❾ **Tone Control (TONE)**

❿ **Function Selector Buttons (TAPE • TUNER/BAND • CD • AUX)**
"TUNER/BAND" Button can also be used for Band Selector.

⓫ **Operation Switch and Operation/Battery Check Indicator (OPERATION)**
The operation can also be turned on by pressing the Function Selector Button.

⓬ **FM Mode/Beat Proof Switch (FM MODE/B.P)**

Ⓐ **Tuner Mode Indicator (TUNER)**

Ⓑ **Frequency Display**

Ⓒ **Auxiliary Mode Indicator (AUX)**

Ⓓ **Preset Tuning Indicators (1–12)**

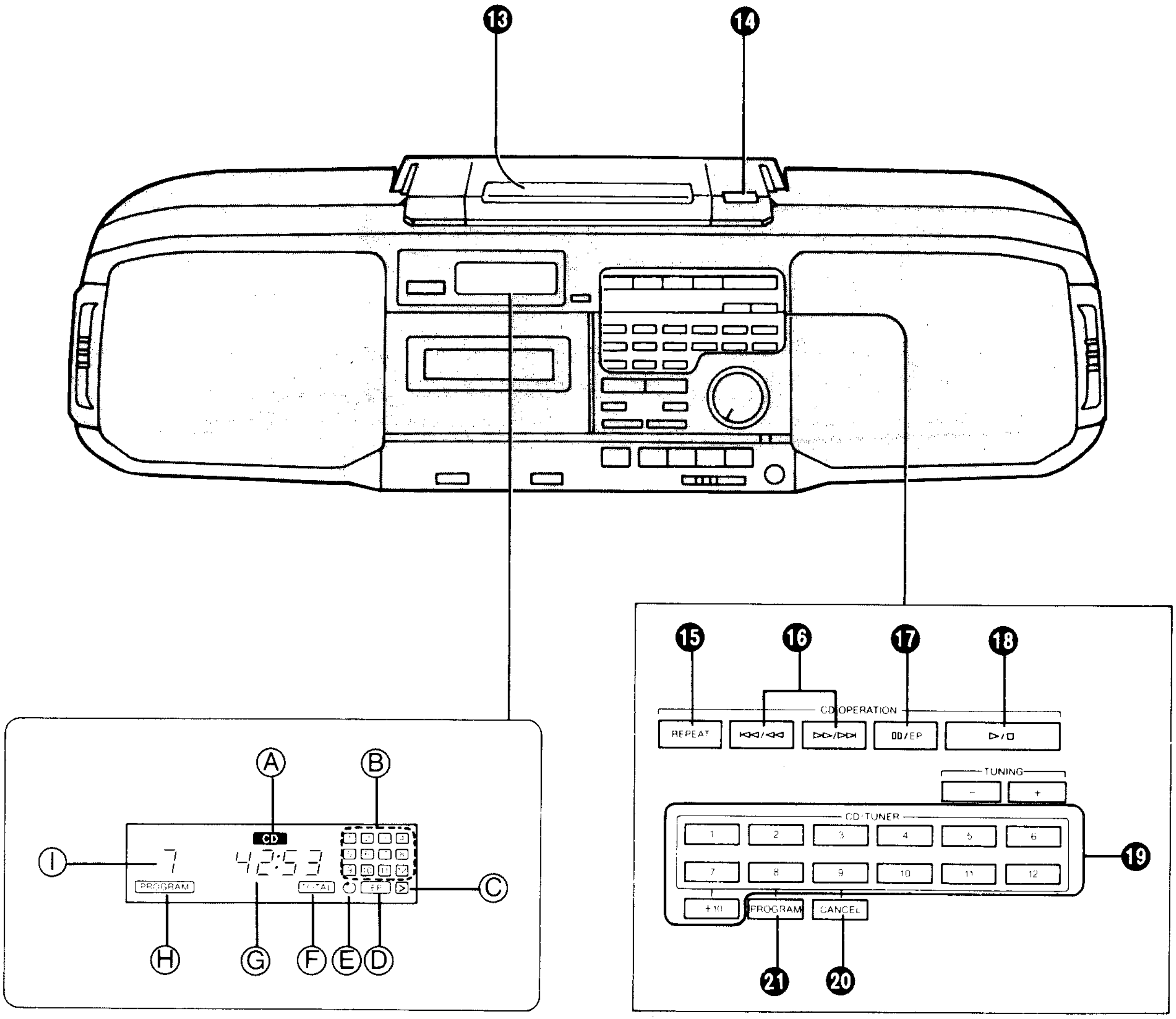
Ⓔ **Stereo Indicator (STEREO)**

Ⓕ **Tuning Indicator (TUNED)**

Ⓖ **Preset Memory Indicator (PROGRAM)**

Ⓗ **Band Indicator (FM • LW • MW)**

•CD-CONTROLS

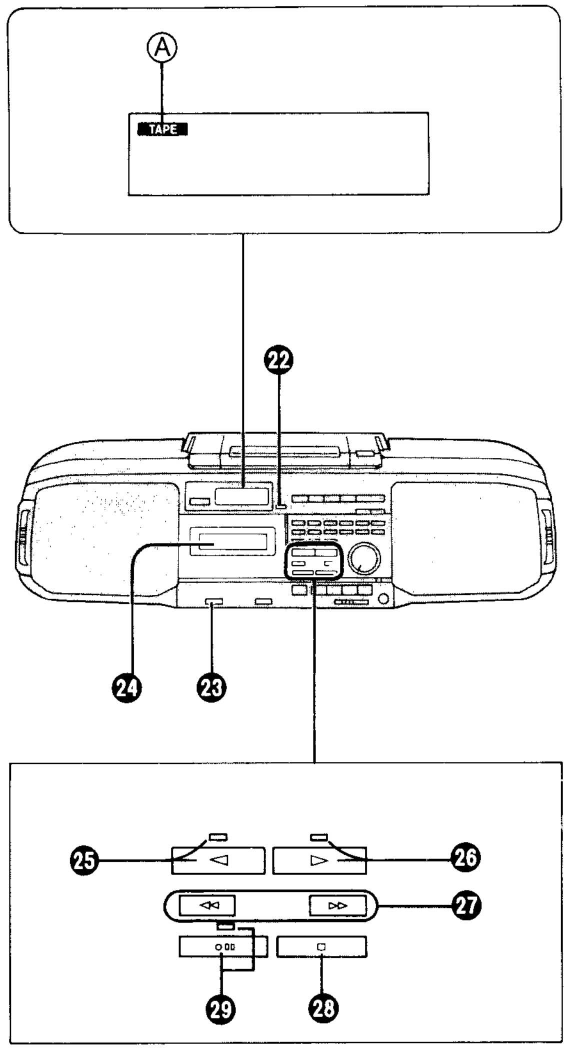

⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
REPEAT
CD OPERATION
DD/EP
TUNING
CD TUNER
1
2
3
4
5
6
7
8
9
10
11
12
+10
PROGRAM
CANCEL
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓔ
Ⓕ
Ⓖ
Ⓗ
Ⓘ
CD
7
42:53
PROGRAM
TOTAL
EP

CD CONTROLS

⑬ **Disc Holder**
⑭ **CD Eject Button (▲ CD EJECT)**
⑮ **Repeat Button (REPEAT)**
⑯ **Skip/Search Buttons (|◁◁/◁◁ • ▷▷/▷▷|)**
⑰ **Pause/Edit-pause Button (▯▯/E.P)**
⑱ **Play/Stop Button (▷/□)**
⑲ **Numeric Buttons (1–12, +10)**
⑳ **Cancel Button (CANCEL)**
㉑ **Program Button (PROGRAM)**

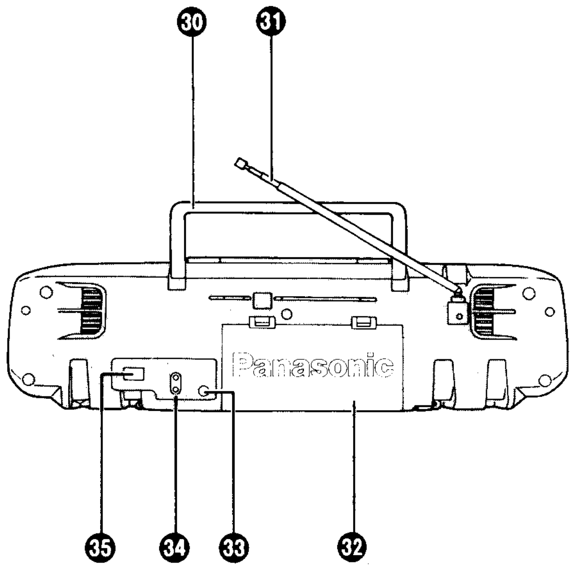
Ⓐ **CD Mode Indicator (CD)**
Ⓑ **Music Matrix (1–12)**
Ⓒ **Over Mark Indicator (▷)**
Ⓓ **Edit-pause Indicator (EP)**
Ⓔ **Repeat Indicator (↻)**
Ⓕ **Total Time Indicator (TOTAL)**
Ⓖ **Playing Time Display**
Ⓗ **Program Indicator (PROGRAM)**
Ⓘ **Track Display**

•DECK CONTROLS



DECK CONTROLS
㉒ **Eject Button (▲ EJECT)**
㉓ **Reverse Mode Select Switch (REVERSE MODE)**
㉔ **Cassette Compartment**
㉕ **Reverse-side Playback Button and Indicator (◁)**
㉖ **Forward-side Playback Button and Indicator (▷)**
㉗ **Fast Buttons (◁◁ • ▷▷)**
㉘ **Stop Button (□)**
㉙ **Recording-pause Button and Indicator (○ ⊐⊏)**
Ⓐ **Tape Mode Indicator (TAPE)**

•REAR PANEL



REAR PANEL
㉚ **Handle**
㉛ **Telescopic Antenna**
㉜ **Battery Compartment**
㉝ **Mixing Microphone Jack (MIX MIC)(Ø3.5, 2.5 mV/200~600Ω)**
㉞ **Auxiliary Input Jacks (AUX IN)(200 mV/47 kΩ)**
㉟ **AC Socket (AC IN ~)**

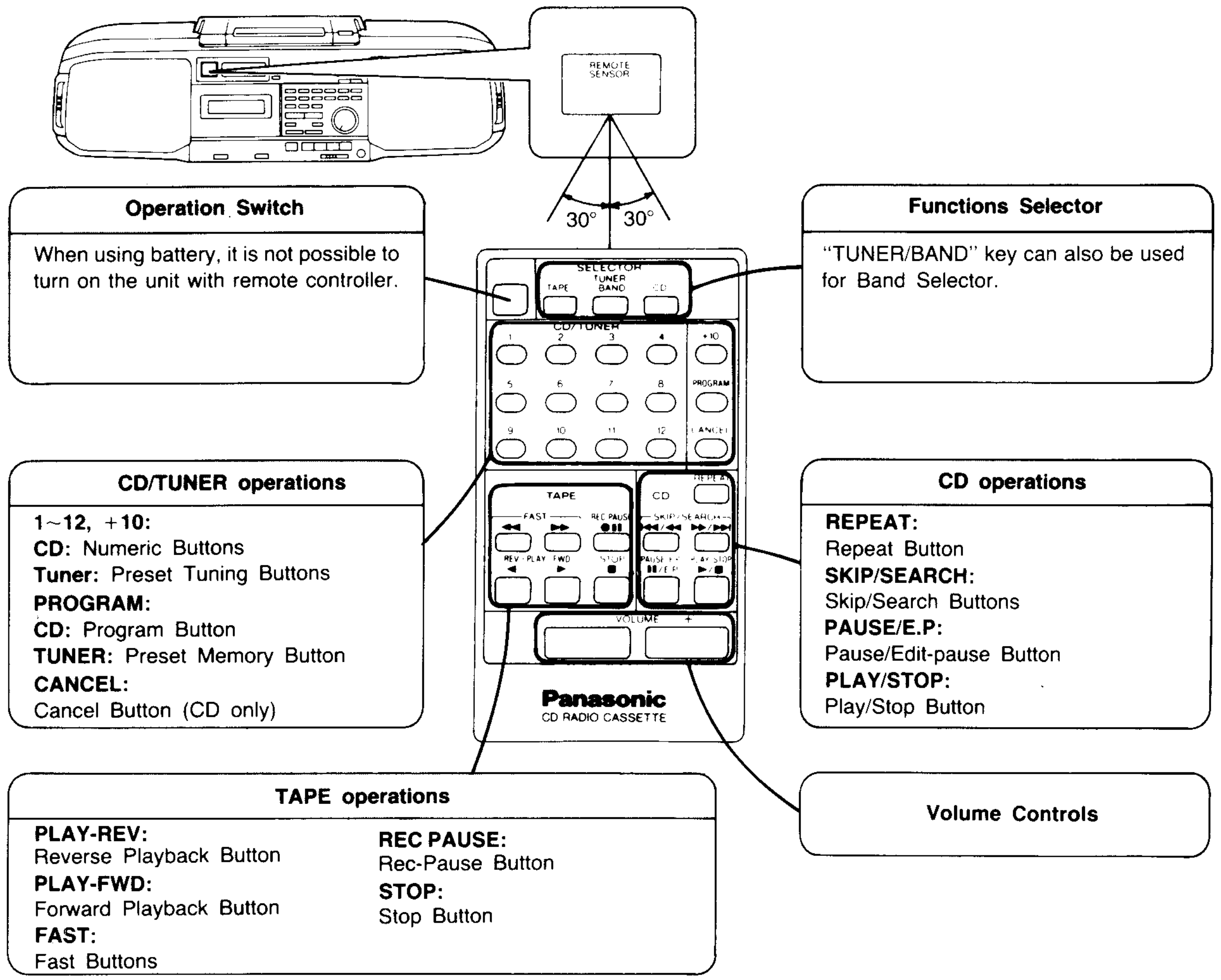
•REMOTE CONTROLLER

■ How to Operate the Remote Controller

Aim the transmitter of the remote controller at the Remote Control Sensor on the unit, and press the necessary buttons on the remote controller.

First, press a button on the function section, and then press a button on the operation section, or another key.

- •The receiving angle is approx. 60° (30° in each of the left and right directions).
- •The maximum usable distance in about 7 m when the Remote Controller is aimed directly at the Remote Control Sensor.



Operation Switch

When using battery, it is not possible to turn on the unit with remote controller.

Functions Selector

"TUNER/BAND" key can also be used for Band Selector.

CD/TUNER operations

1~12, +10:
CD: Numeric Buttons
Tuner: Preset Tuning Buttons
PROGRAM:
CD: Program Button
TUNER: Preset Memory Button
CANCEL:
Cancel Button (CD only)

CD operations

REPEAT:
Repeat Button
SKIP/SEARCH:
Skip/Search Buttons
PAUSE/E.P:
Pause/Edit-pause Button
PLAY/STOP:
Play/Stop Button

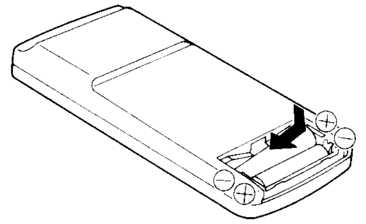
TAPE operations

PLAY-REV:
Reverse Playback Button
PLAY-FWD:
Forward Playback Button
FAST:
Fast Buttons
REC PAUSE:
Rec-Pause Button
STOP:
Stop Button

Volume Controls

■ Inserting the Remote Controller batteries

1. Open the cover of the battery case.
2. Insert the batteries.
   Batteries used: Two UM-4 (Panasonic R03/LR03 or equivalent, not included).



Insert the batteries in the correct polarity (⊕ ⊖).

■ Replacement interval of Remote Controller batteries

Although the life of the batteries will vary depending upon the number of times that the Remote Controller is used, the average life based on the used of the batteries is about 1 year.

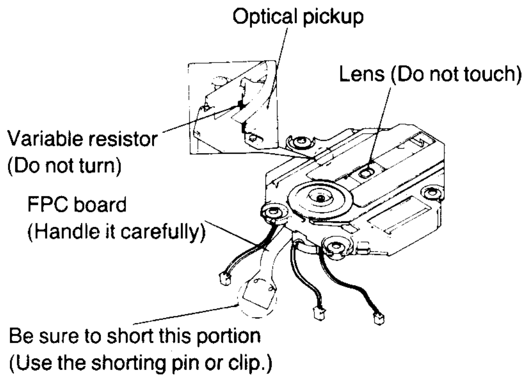
(If the Remote Controller fails to operate when it is held near the unit, replace the batteries with new ones, even if one year has not elapsed.)

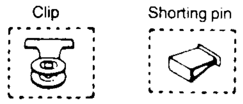
■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

•Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

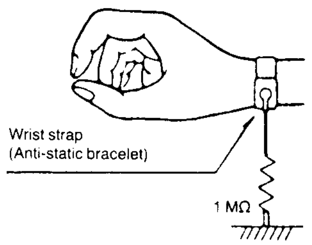

Optical pickup
Lens (Do not touch)
Variable resistor
(Do not turn)
FPC board
(Handle it carefully)
Be sure to short this portion
(Use the shorting pin or clip.)

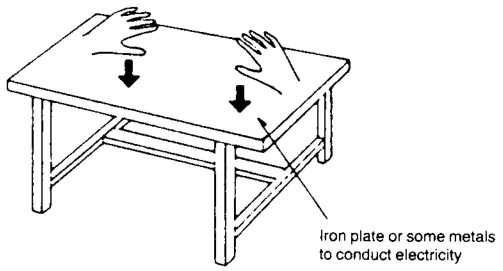

Clip
Shorting pin

•Grounding for electrostatic breakdown prevention

1. Human body grounding.
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).

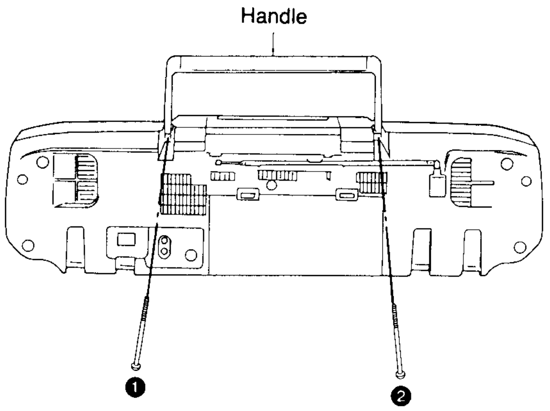

Wrist strap
(Anti-static bracelet)
1 MΩ


Iron plate or some metals
to conduct electricity

■ DISASSEMBLY INSTRUCTIONS

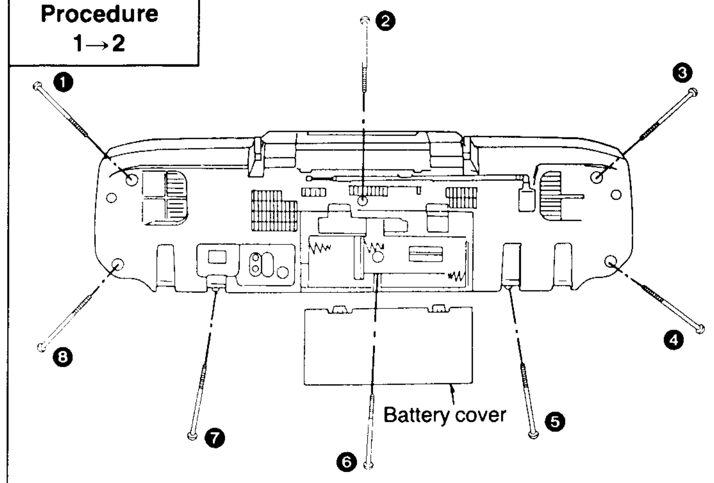
Warning: This product uses a laser diodes. Refer to caution statements on page 2.

Ref. No. **1**	**Removal of the Handle**
Procedure **1**	

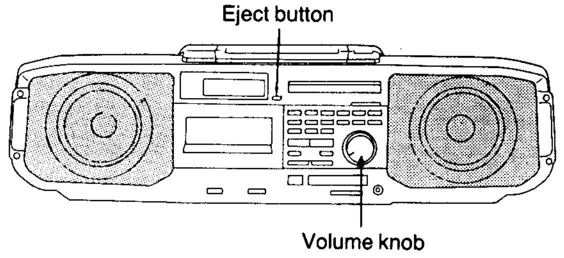


•Remove the 2 screws (❶, ❷).

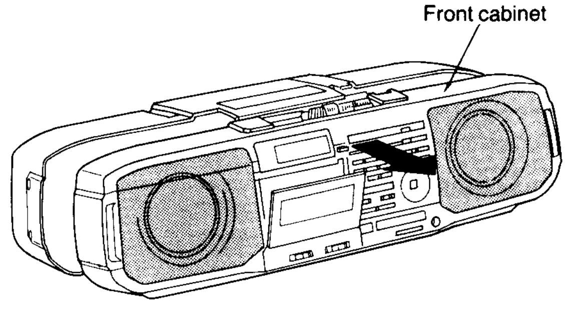
Ref. No. **2**	**Removal of the Front Cabinet**
Procedure **1→2**	


❶
❷
❸
❹
❺
❻
❼
❽
Battery cover

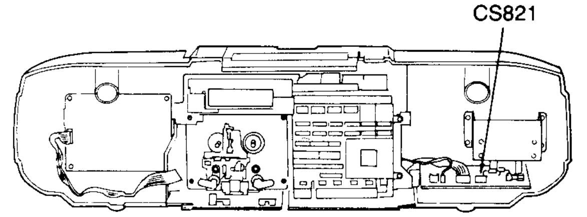
1. Remove the battery cover.
2. Remove the 8 screws (❶~❽).


Eject button
Volume knob

3. Pull out the volume knob.
4. Press the eject button.

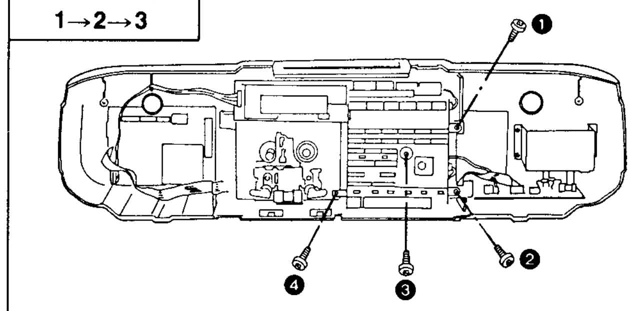

Front cabinet

5. Remove the front cabinet in the direction of the arrow.

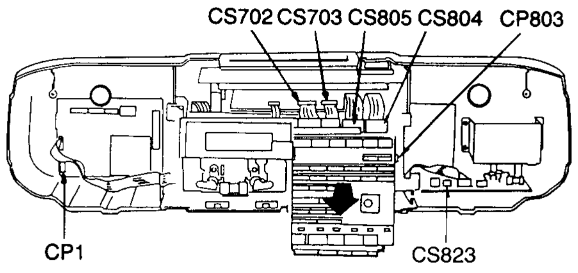


6. Remove the connector (CS821).

Ref. No. **3**	**Removal of the Operation/LCD P.C.B.**
Procedure **1→2→3**	

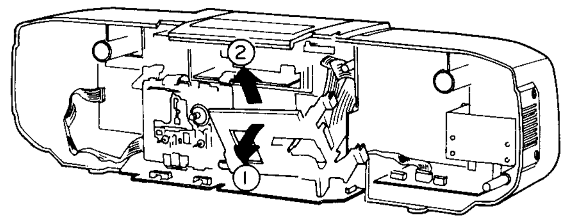


1. Remove the 4 screws (❶~❹).

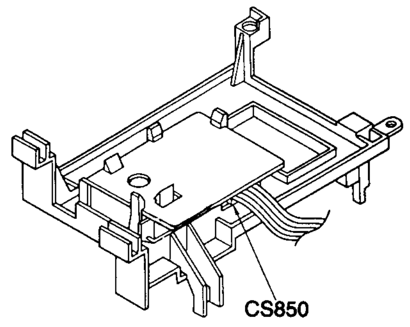

CS702 CS703 CS805 CS804 CP803
CP1
CS823

2. Remove the 6 connectors (CP1, CS702, CS703, CP803, CS804, CS805 and CS823).

Ref. No. **4**	**Removal of the Chassis and Volume P.C.B.**
Procedure **1→2→3→4**	

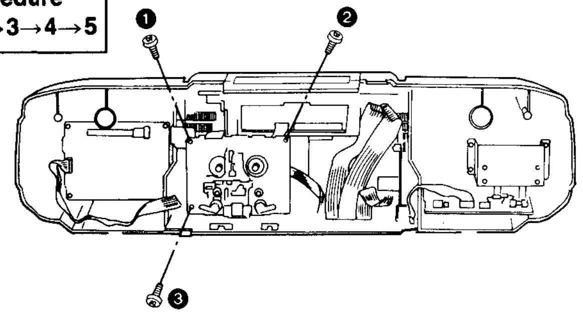


1. Pull down the chassis in the direction of arrow ① and then remove it in the direction of arrow ②.

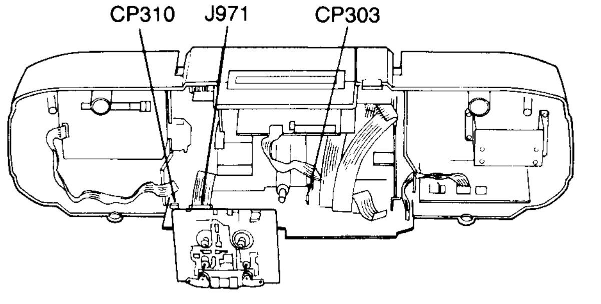


2. Remove the connector (CS850).

Ref. No. 5	Removal of the Mechanism
Procedure 1→2→3→4→5	



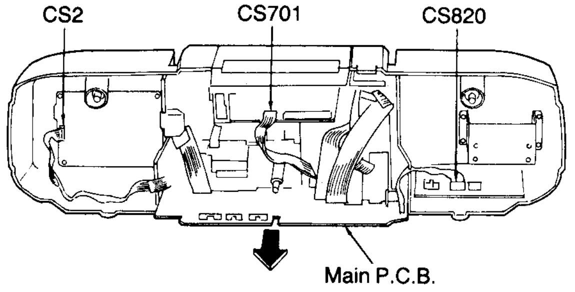
1. Remove the 3 screws (❶~❸).


CP310
J971
CP303

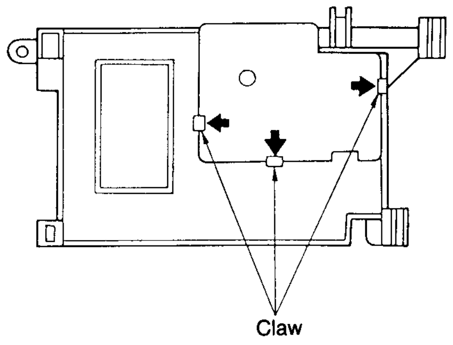
2. Remove the 3 connectors (CP303, CP310 and J971).

Ref. No. 6	Removal of the Main P.C.B.
Procedure 1→2→3→4→5→6	

1. Remove the 3 connectors (CS2, CS701 and CS820).
2. Pull out the main P.C.B.

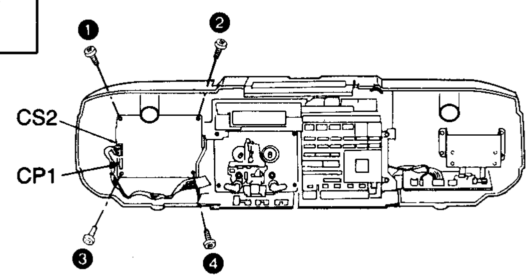

CS2
CS701
CS820
Main P.C.B.

Ref. No. 7	Removal of the Volume P.C.B.
Procedure 1→2→3→4→7	



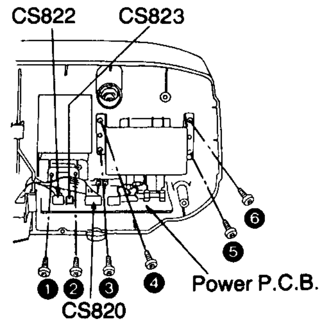
- Remove 3 claws in the direction of arrows.

Ref. No. 8	Removal of the Tuner P.C.B.
Procedure 1→2→8	


❶
❷
CS2
CP1
❸
❹

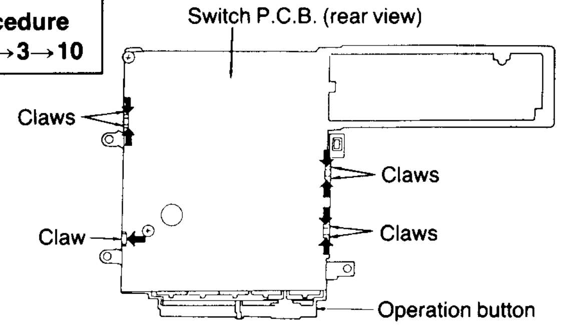
1. Remove the 2 connectors (CP1 and CS2).
2. Remove the 4 screws (❶~❹).

Ref. No. 9	Removal of the Power P.C.B.
Procedure 1→9	


CS822
CS823
❻
❺
❶❷❸ ❹
CS820
Power P.C.B.

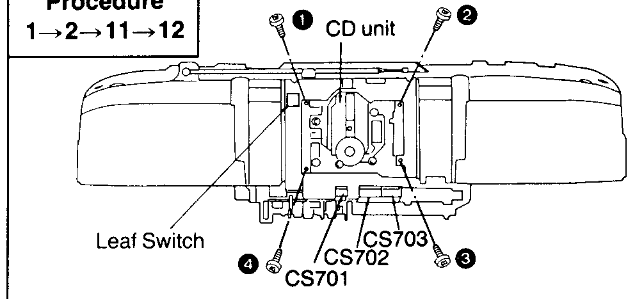
1. Remove the 6 screws (❶~❻).
2. Remove the 2 connectors (CS820, CS822 and CS823).

Ref. No. 10	Removal of the Operation Button
Procedure 1→2→3→10	


Switch P.C.B. (rear view)
Claws
Claws
Claw
Claws
Operation button

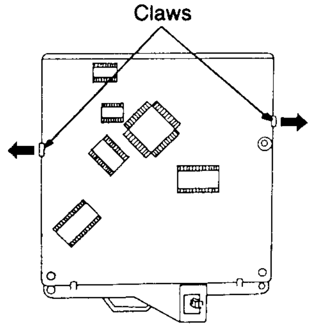
- Remove the 7 claws in the direction of the arrows.

Ref. No. 12	Removal of the CD Unit and CD P.C.B.
Procedure 1→2→11→12	

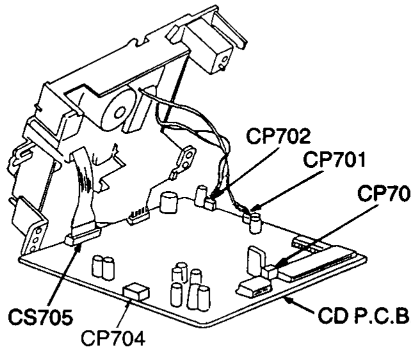

❶
CD unit
❷
Leaf Switch
CS703
CS702
❹
CS701
❸

1. Remove the leaf switch.
2. Remove the 4 screws (❶~❹).
3. Remove the 3 connectors (CS701, CS702 and CS703).

Ref. No. 13	Removal of the CD P.C.B.
Procedure 1→2→11→12→13	

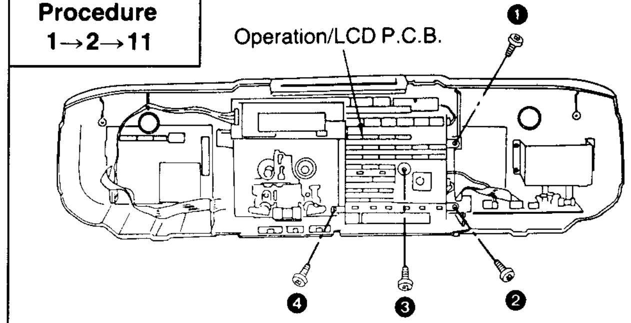


1. Remove the 2 claws in the direction of the arrows.

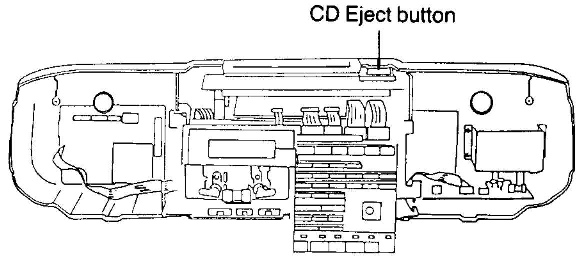

CP702
CP701
CP703
CS705
CP704
CD P.C.B.

2. Remove the 4 connectors (CP701, CP702, CP703, CP704 and CS705).

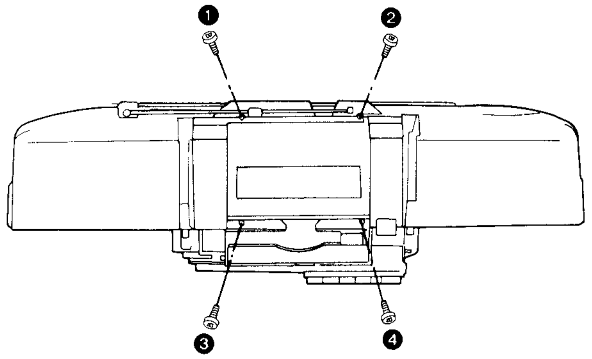
Ref. No. 11	Removal of the Upper Cabinet
Procedure 1→2→11	


Operation/LCD P.C.B.
❶
❹
❸
❷

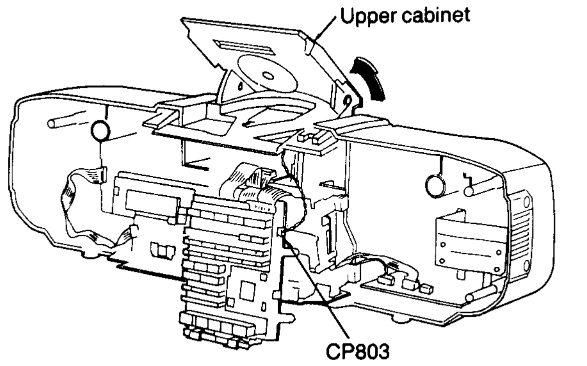
1. Remove the 4 screws (❶~❹) and Operation/LCD P.C.B.


CD Eject button

2. Press the CD Eject button.



3. Remove the 4 screws (❶~❹).

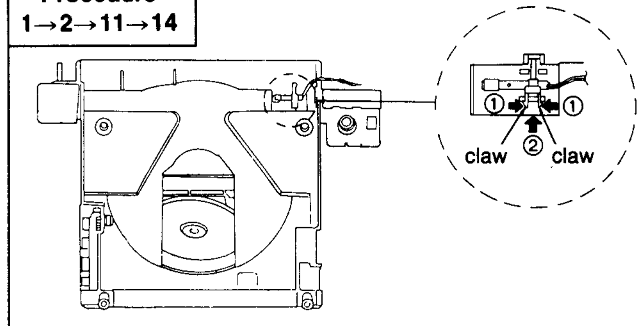

Upper cabinet
CP803

4. Remove the upper cabinet in the direction of the arrow.
5. Remove the connector (CP803).

Ref. No. 14

Removal of the Open/Close Switch

Procedure 1→2→11→14

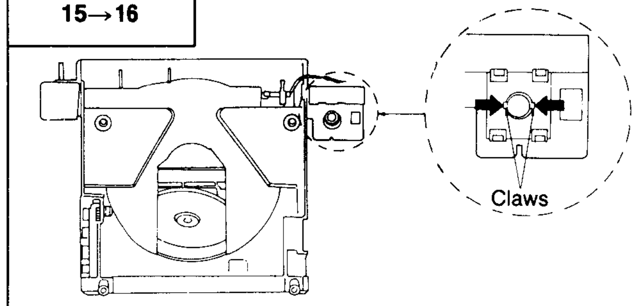

①
①
②
claw
claw

- Remove 2 claws in the direction of arrow ① and remove the open/close switch in the direction of arrow ②.

Ref. No. 16

Removal of the CD Eject Lever

Procedure 1→2→11→15→16

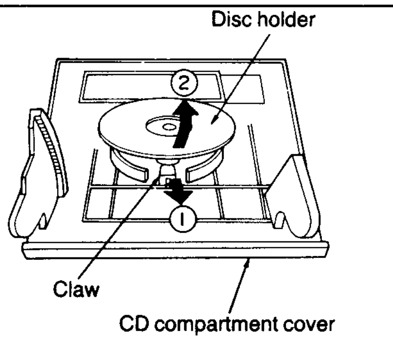


- Remove the 2 claws in the direction of the arrows.

Ref. No. 18

Removal of the Disc Holder

Procedure 1→2→11→17→18


Disc holder
②
①
Claw
CD compartment cover

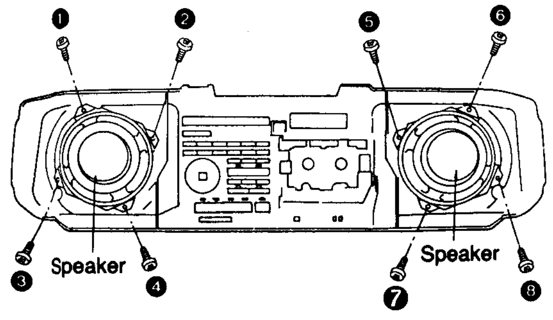
- Remove the claw in he direction of arrow ① and remove the disc holder in the direction of arrow ②.

Ref. No. 19

Removal of the Speaker

Procedure 1→2→19

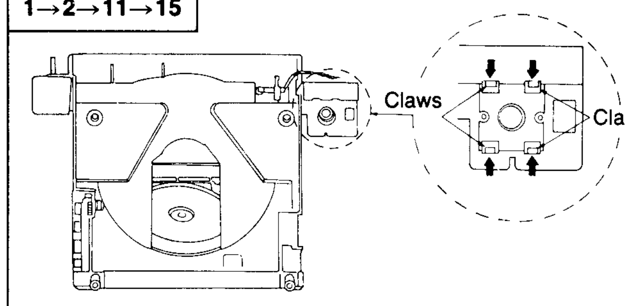
- Remove the 8 screws (❶~❽).


❶
❷
❺
❻
Speaker
Speaker
❸
❹
❼
❽

Ref. No. 15

Removal of the CD Eject Button

Procedure 1→2→11→15

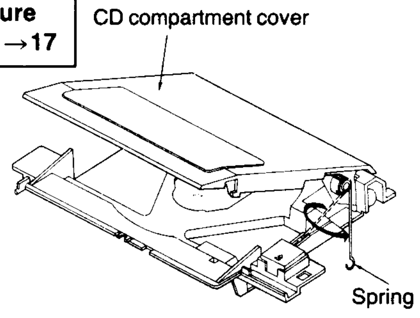

Claws
Claws

- Remove the 4 claws in the direction of the arrows.

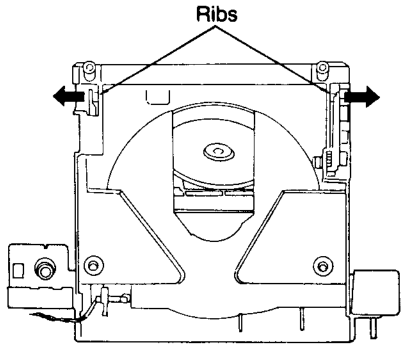
Ref. No. 17

Removal of the CD Compartment Cover

Procedure 1→2→11→17


CD compartment cover
Spring

1. Remove the spring.

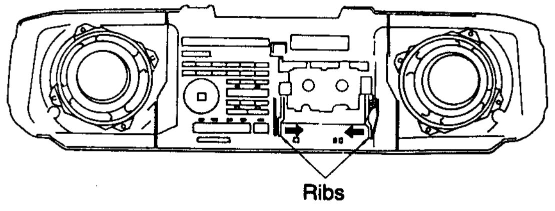


2. Remove the 2 ribs in the direction of the arrows.

Ref. No. 20

Removal of the Cassette Holder

Procedure 1→2→20



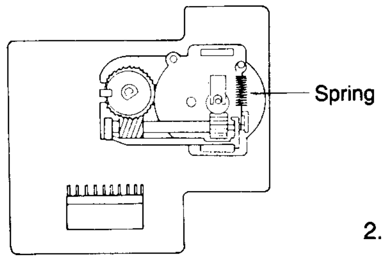
- Remove the 2 ribs in the direction of the arrows.

Ref. No. 21

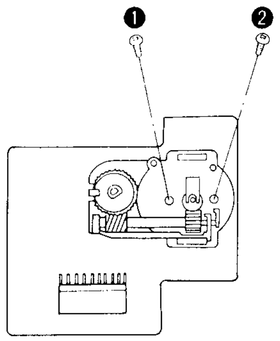
Removal of the Volume Chassis

Procedure 1→2→3→4→7→21

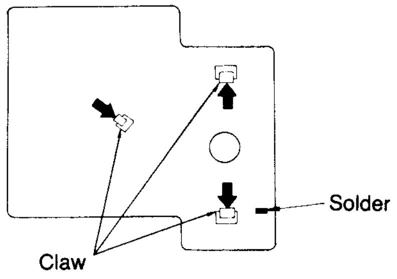
1. Remove the spring.



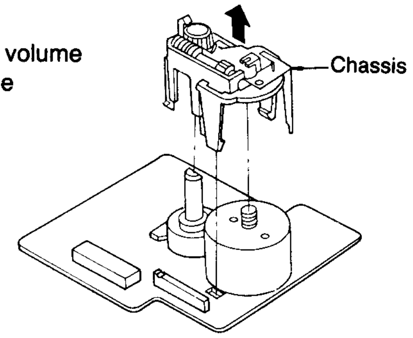
2. Remove 2 screws (❶, ❷).



3. Remove the solder.
4. Release 3 claws in the direction of arrows.


Solder
Claw

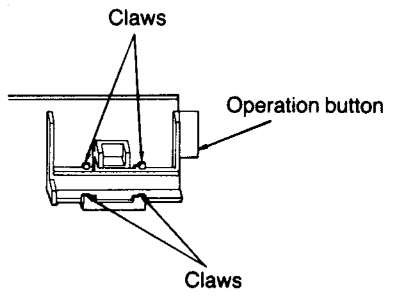
5. Remove the volume chassis in the direction of arrow.



Ref. No. 22

Removal of the TONE Control Knob

Procedure 1→2→3→22

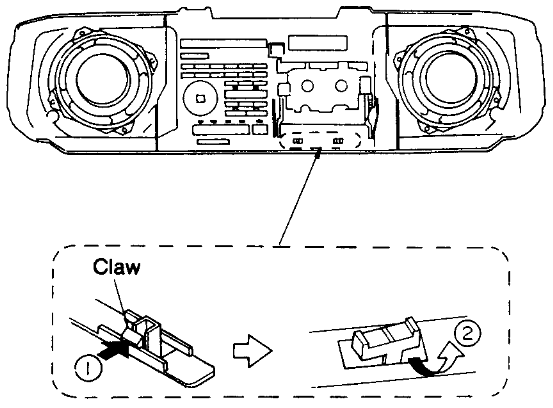

Claws
Operation button
Claws

- Remove the 4 claws.

Ref. No. 23

Removal of the Reverse Mode, Timer REC and FM Mode Knob

Procedure 1→2→23



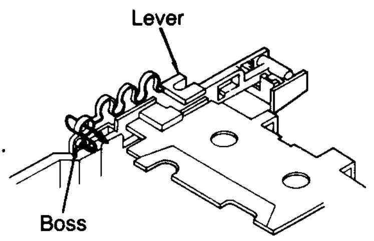
- Remove the claw in the direction of arrow ① and then remove the knob in the direction of arrow ②.

Ref. No. 24

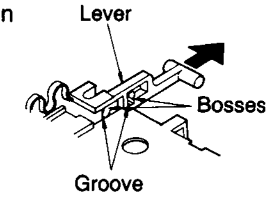
Removal of the Cassette Eject Button

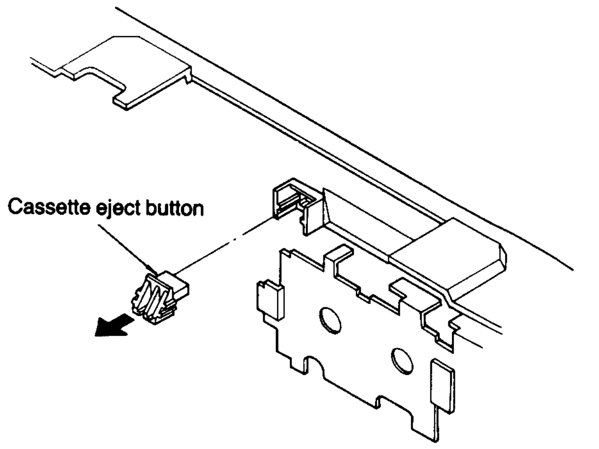
Procedure 1→2→24

1. Remove the boss in the direction of arrow.



2. Slide the lever in the direction of arrow and then remove 2 bosses.


Lever
Bosses
Groove

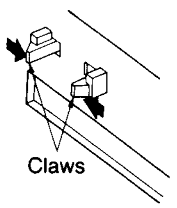

Cassette eject button

3. Remove the Cassette eject button in the direction of the arrow.

Ref. No. 25

Removal of the Panasonic Badge

Procedure
1→2→25

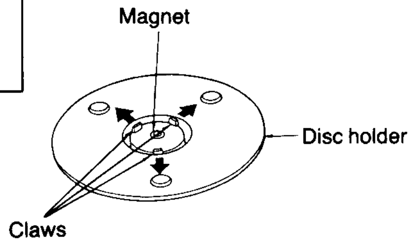


1. Remove the 2 claws in the direction of the arrows.

Ref. No. 26

Removal of the Disc Magnet

Procedure
1→2→11→
17→18→26

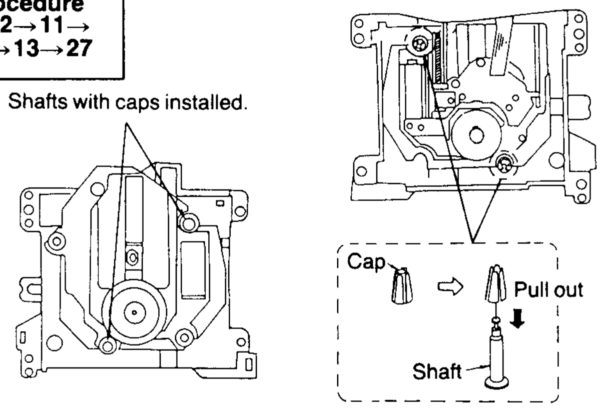

Magnet
Disc holder
Claws

- Remove the 3 claws in the direction of the arrows.

Ref. No. 27

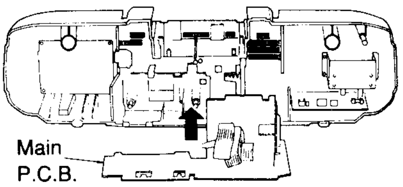
Removal of the CD Unit

Procedure
1→2→11→
12→13→27

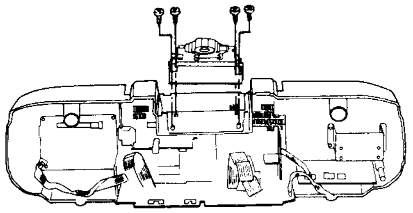

Shafts with caps installed.
Cap
Pull out
Shaft

- Remove the adhesive off the caps installed in the shafts with a cutter or similar tool and then remove the caps. Remove the traverse unit and chassis.
- To reinstall the caps, use bonding adhesive.

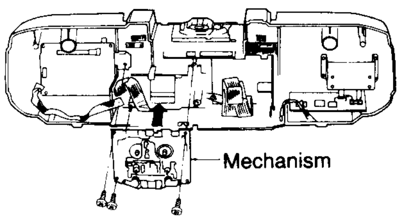
●ASSEMBLY INSTRUCTION



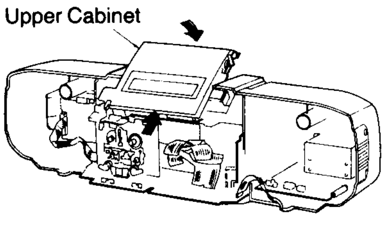
1. Insert the main P.C.B.



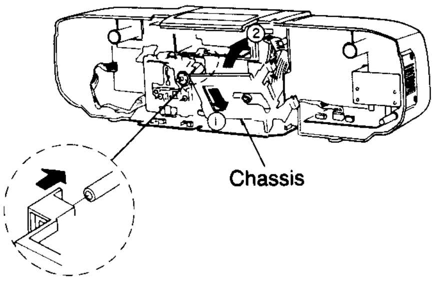
2. Replace the CD unit.



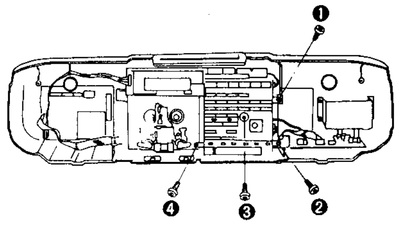
3. Replace the mechanism.


Upper Cabinet

4. Replace the upper cabinet.

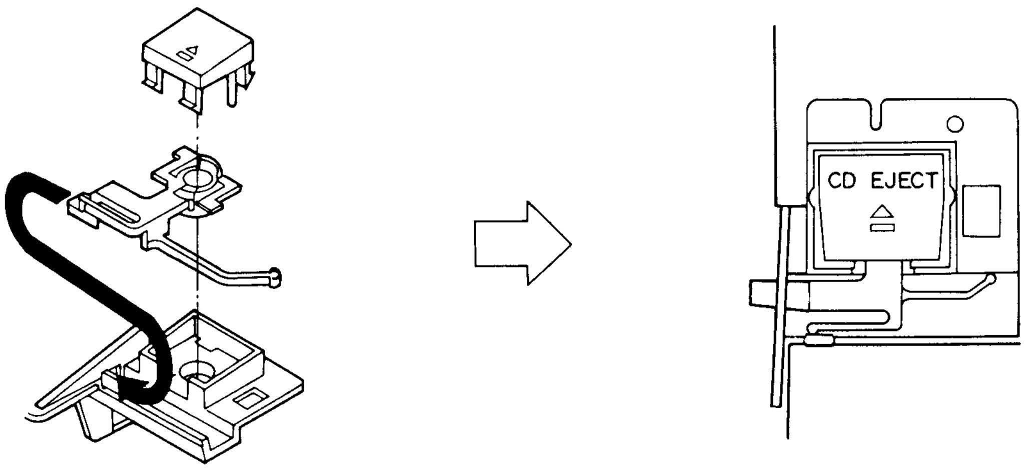


5. Replace the chassis.

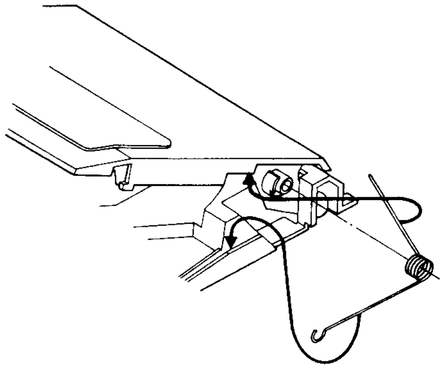


6. Replace the operation button.

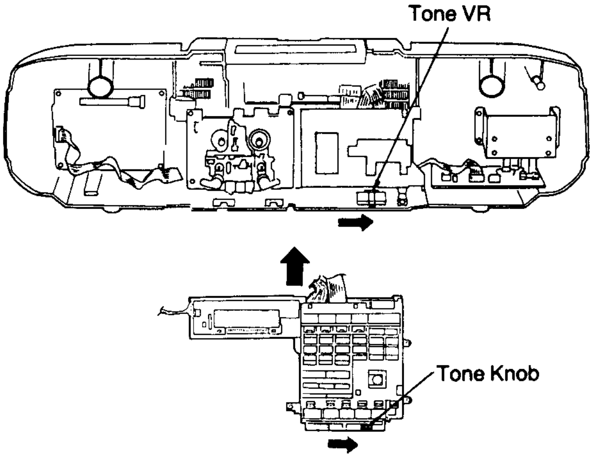
•CD EJECT BUTTON ASSEMBLY



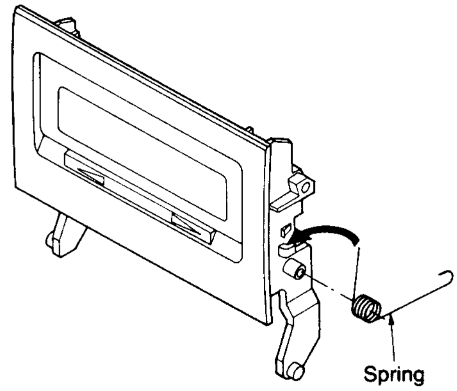
•CD COMPARTMENT COVER ASSEMBLY

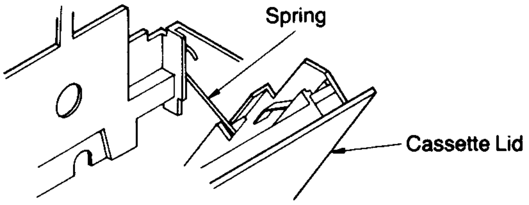


•OPERATION BUTTON ASSEMBLY

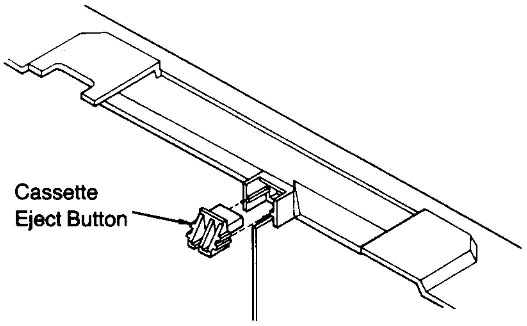

Tone VR
Tone Knob

•CASSETTE HOLDER ASSEMBLY

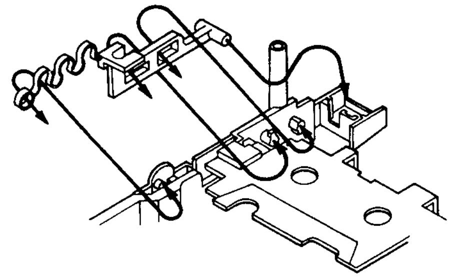



Spring
Cassette Lid

•CASSETTE EJECT BUTTON ASSEMBLY

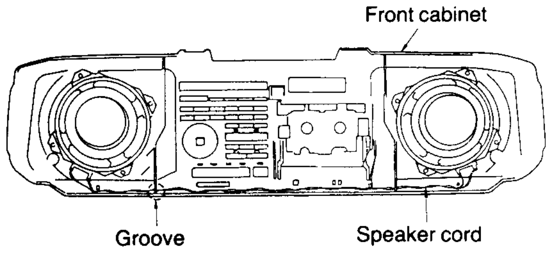

Cassette
Eject Button

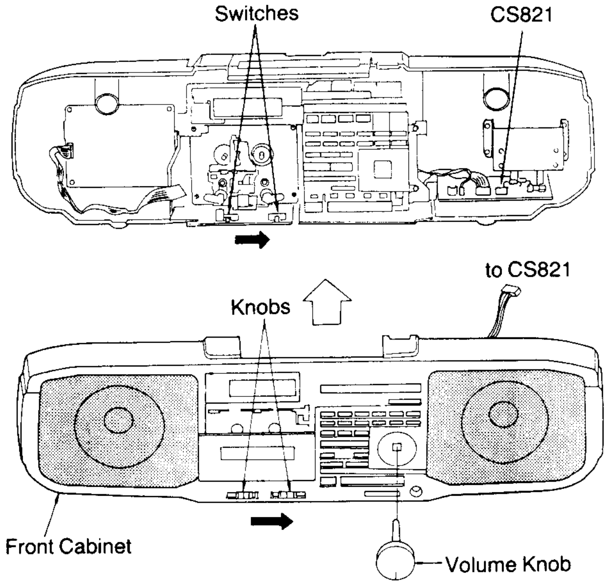
1. Insert the cassette eject button.



2. Replace the eject lever.

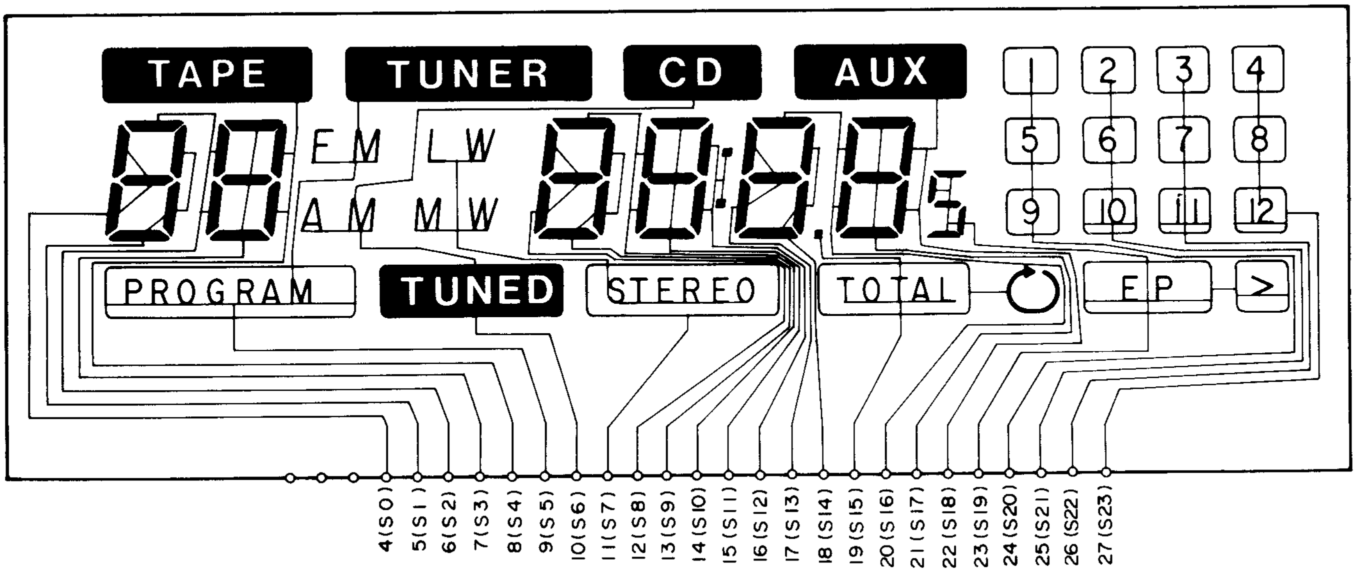
•FRONT CABINET ASSEMBLY

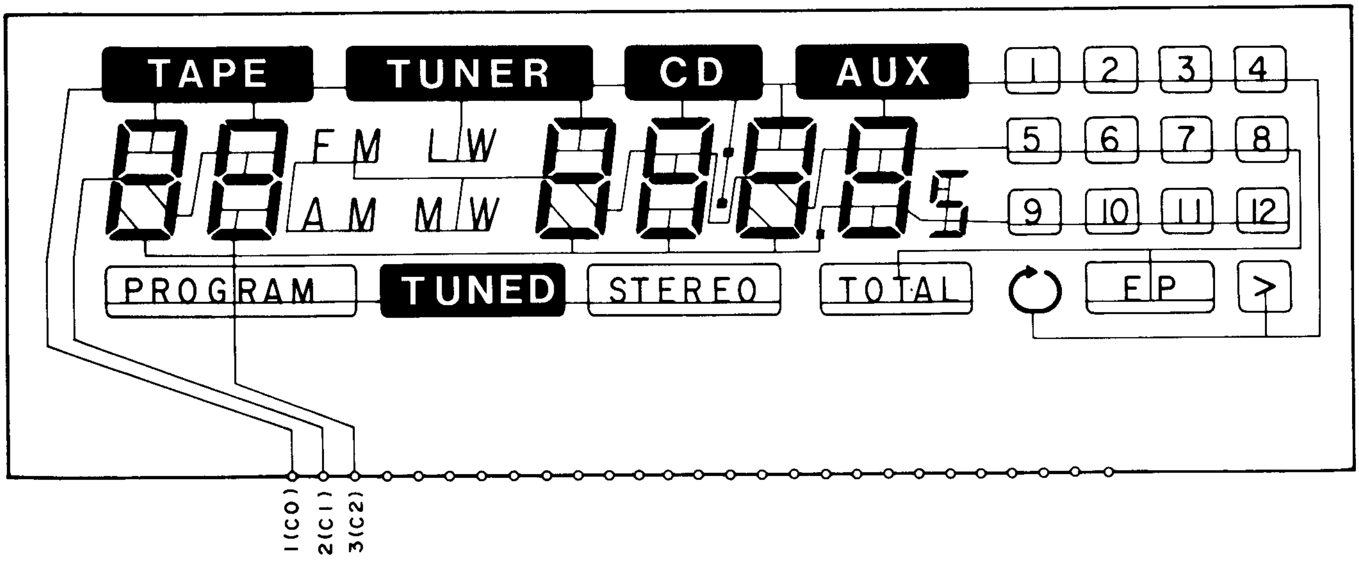

Front cabinet
Groove
Speaker cord


Switches
CS821
to CS821
Knobs
Front Cabinet
Volume Knob

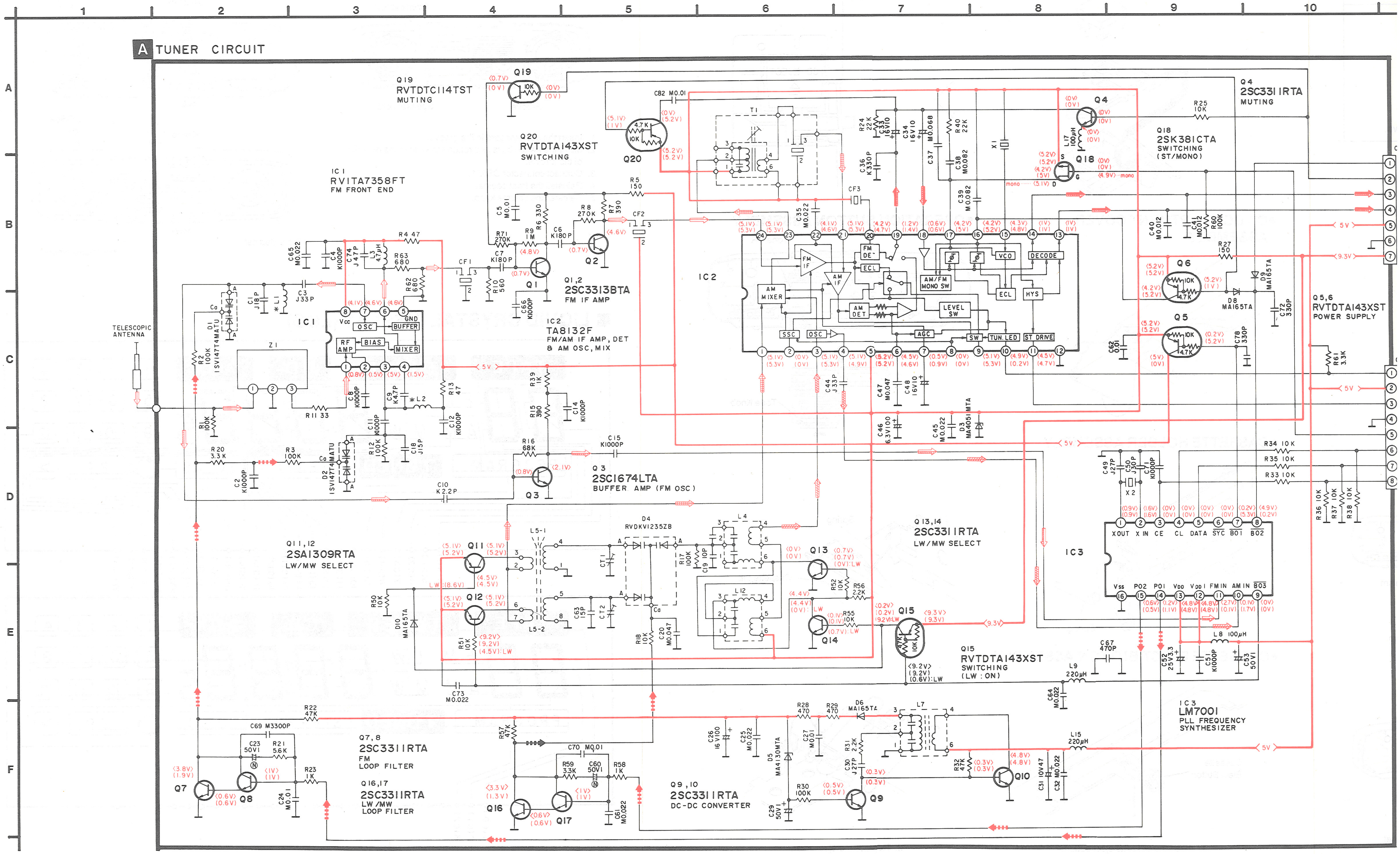
1. Insert the speaker cord in the groove.
2. Move the switch boss and rotate the knob in the direction of the arrows.
3. Connect connector CS821.
4. Reinstall the front cabinet.
5. Reinstall the volume knob.

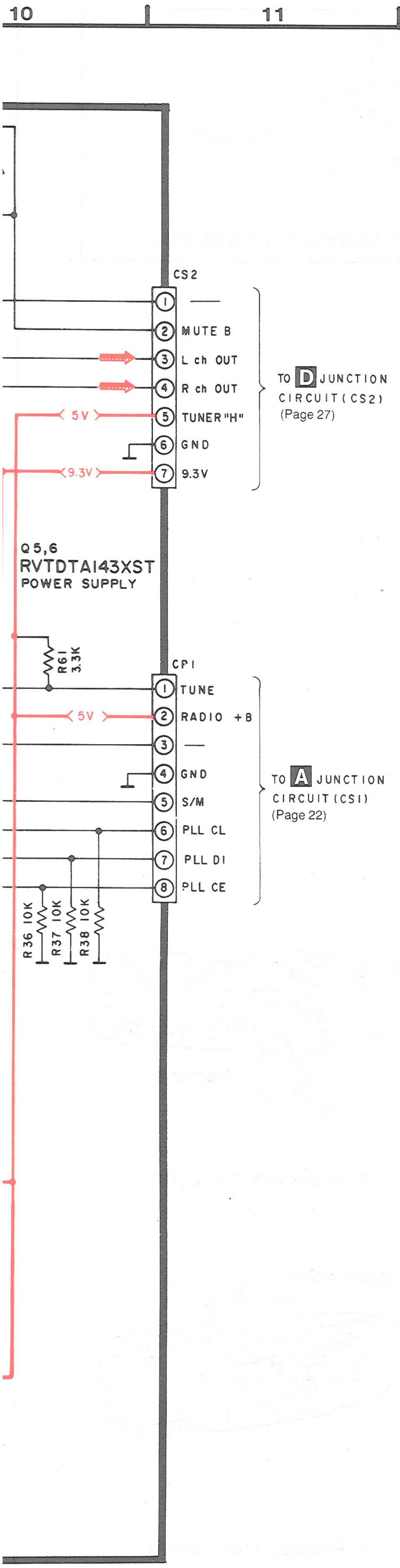
■ LIQUID CRYSTAL DISPLAY (LCD)


TAPE
TUNER
CD
AUX
1
2
3
4
5
6
7
8
9
10
11
12
FM
LW
AM
MW
PROGRAM
TUNED
STEREO
TOTAL
EP
>
4(S0)
5(S1)
6(S2)
7(S3)
8(S4)
9(S5)
10(S6)
11(S7)
12(S8)
13(S9)
14(S10)
15(S11)
16(S12)
17(S13)
18(S14)
19(S15)
20(S16)
21(S17)
22(S18)
23(S19)
24(S20)
25(S21)
26(S22)
27(S23)


TAPE
TUNER
CD
AUX
1
2
3
4
5
6
7
8
9
10
11
12
FM
LW
AM
MW
PROGRAM
TUNED
STEREO
TOTAL
EP
>
1(C0)
2(C1)
3(C2)

■ SCHEMATIC DIAGRAM ●for Tuner Circuit (Parts list on pages 57~60.)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
A TUNER CIRCUIT
Q19 RVTDTC114TST MUTING
Q20 RVTDTA143XST SWITCHING
IC1 RVITA7358FT FM FRONT END
Q1,2 2SC3313BTA FM IF AMP
IC2 TA8132F FM/AM IF AMP, DET & AM OSC, MIX
Q3 2SC1674LTA BUFFER AMP (FM OSC)
Q4 2SC3311RTA MUTING
Q18 2SK381CTA SWITCHING (ST/MONO)
Q5,6 RVTDTA143XST POWER SUPPLY
Q11,12 2SA1309RTA LW/MW SELECT
Q13,14 2SC3311RTA LW/MW SELECT
Q15 RVTDTA143XST SWITCHING (LW : ON)
IC3 LM7001 PLL FREQUENCY SYNTHESIZER
Q7,8 2SC3311RTA FM LOOP FILTER
Q16,17 2SC3311RTA LW/MW LOOP FILTER
Q9,10 2SC3311RTA DC-DC CONVERTER
TELESCOPIC ANTENNA
D4 RVDKV1235ZB
FM IF
AM IF
AM MIXER
AM DET
FM DET
ECL
AM/FM MONO SW
LEVEL SW
VCO
DECODE
HYS
SSC
OSC
AGC
SW
TUN.LED
ST DRIVE
Vcc
OSC
GND
BUFFER
RF AMP
BIAS
MIXER
XOUT
X IN
CE
CL
DATA
SYC
BO1
BO2
Vss
PO2
PO1
VDD
VDD1
FM IN
AM IN
BO3
5V
9.3V
mono
LW


10
11
12
13
14
CS2
① —
② MUTE B
③ L ch OUT
④ R ch OUT
⑤ TUNER "H"
⑥ GND
⑦ 9.3V
5V
9.3V
TO D JUNCTION CIRCUIT (CS2)
(Page 27)
Q5,6
RVTDTA143XST
POWER SUPPLY
R61 3.3K
CP1
① TUNE
② RADIO +B
③ —
④ GND
⑤ S/M
⑥ PLL CL
⑦ PLL DI
⑧ PLL CE
5V
TO A JUNCTION CIRCUIT (CS1)
(Page 22)
R36 10K
R37 10K
R38 10K

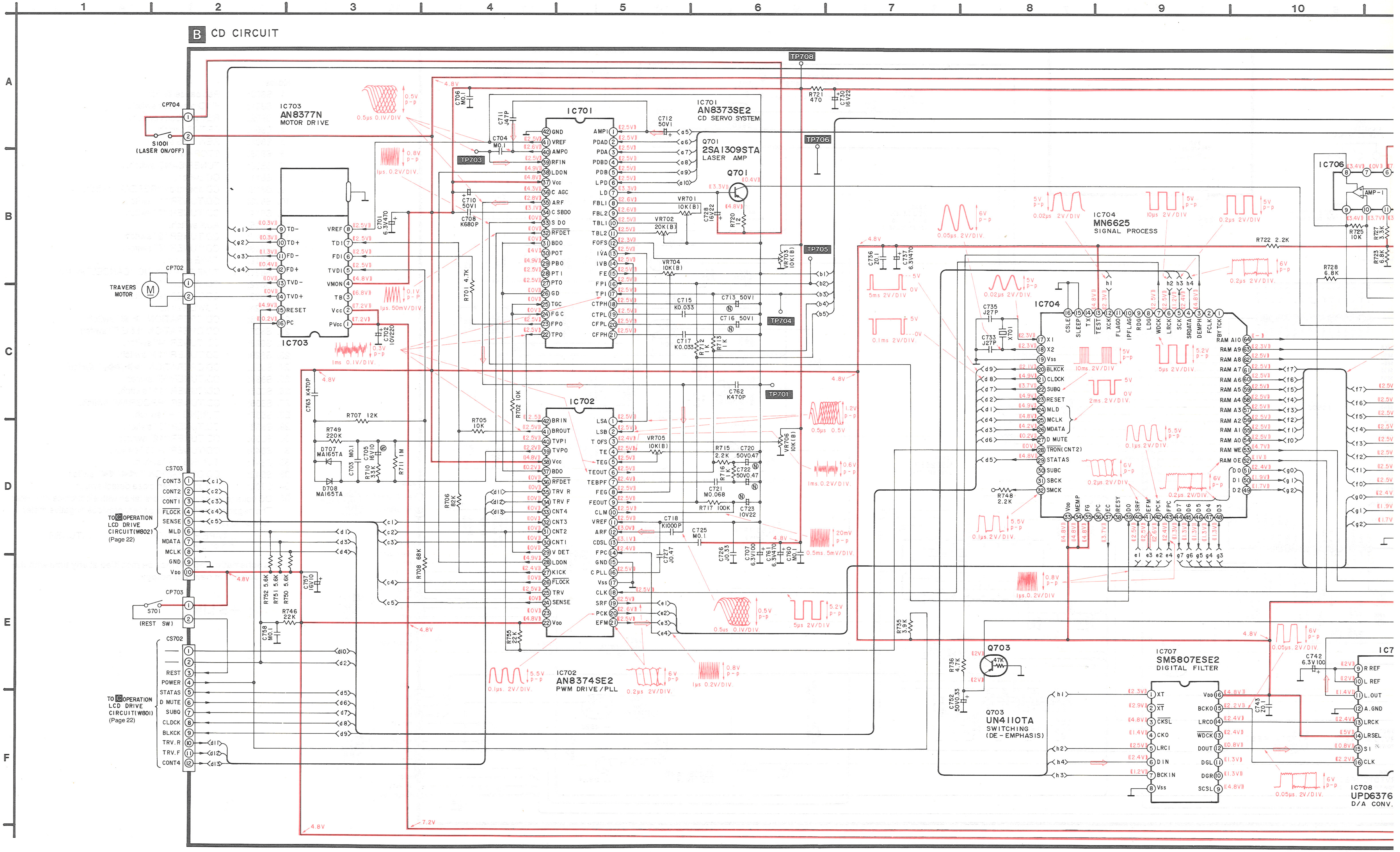
Notes:
(for Tuner circuit and CD circuit)

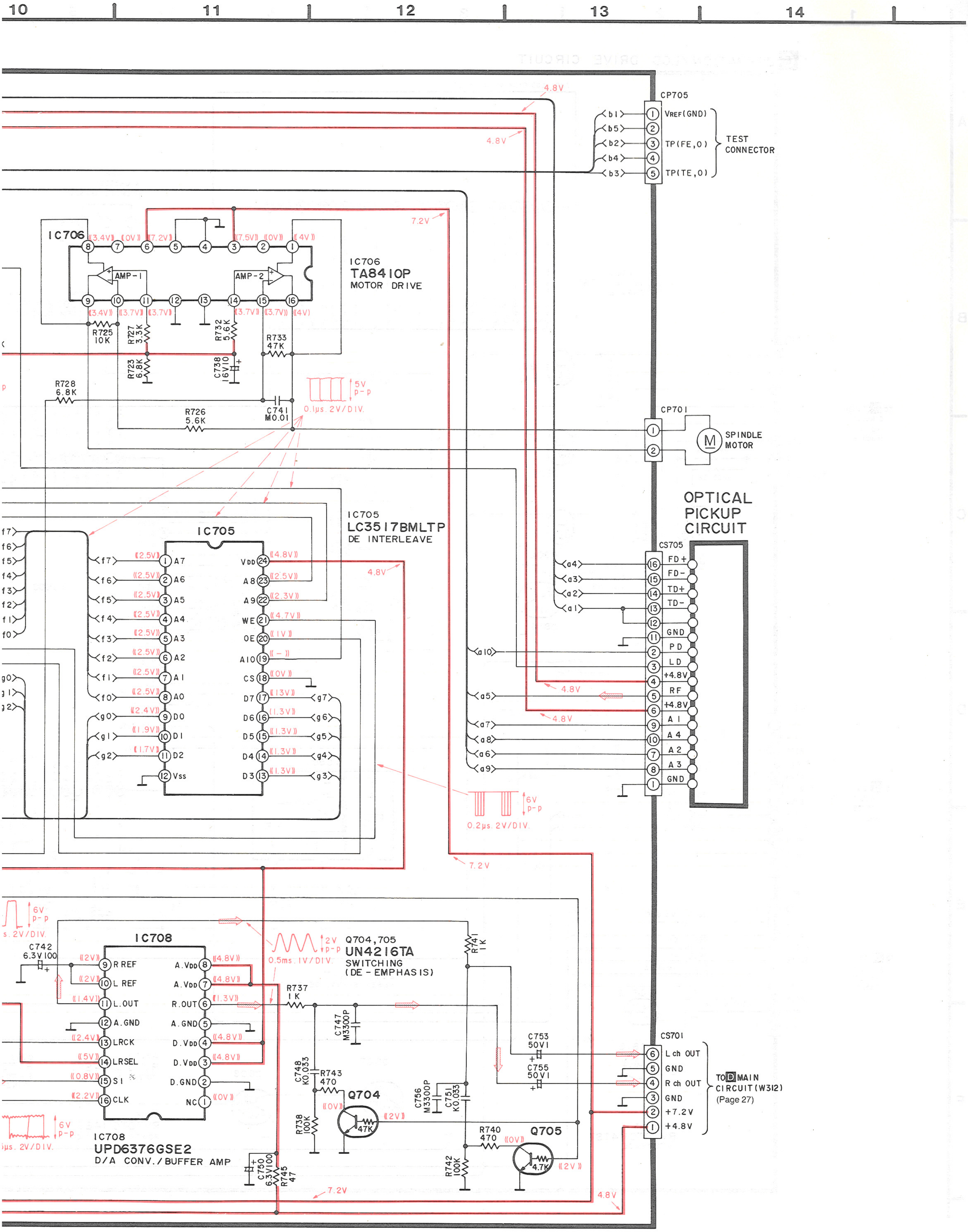
1. S701: REST switch.
2. S1001: Laser ON/OFF switch.
3. VR701: Best eye adjustment VR.
4. VR702: Tracking balance adjustment VR.
5. VR703: Focus offset adjustment VR.
6. VR704: Focus gain adjustment VR.
7. VR705: Tracking gain adjustment VR.
8. VR706: Tracking offset adjustment VR.
9. DC voltage measurements are taken with electronics voltmeter.
   The negative terminal of the battery provides negative meter connection point.
   ( )...MW/LW (( ))...CD
   < >...FM

- **This schematic diagram may be modified at any time with the development of new technology.**

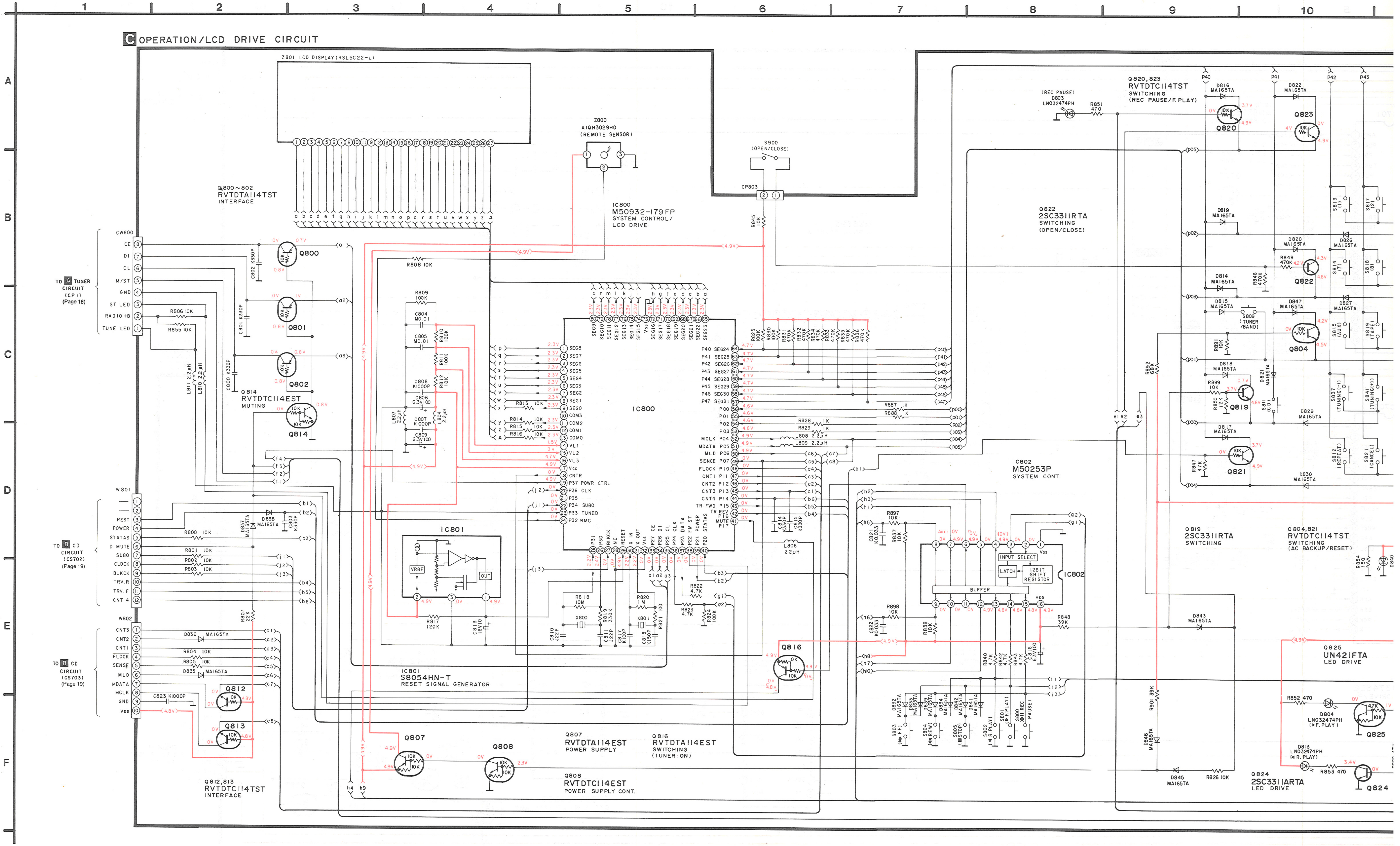
⇨ : **FM SIGNAL LINE**
▭⇨ : **LW/MW SIGNAL LINE**
➡ : **FM/LW/MW SIGNAL LINE**
⇨ : **FM OSC SIGNAL LINE**
▨⇨ : **LW/MW OSC SIGNAL LINE**
▮▮▮➡ : **FM/MW/LW V-cap CONTROL SIGNAL LINE**
⇨ : **CD SIGNAL LINE**
▬ : **+B LINE**

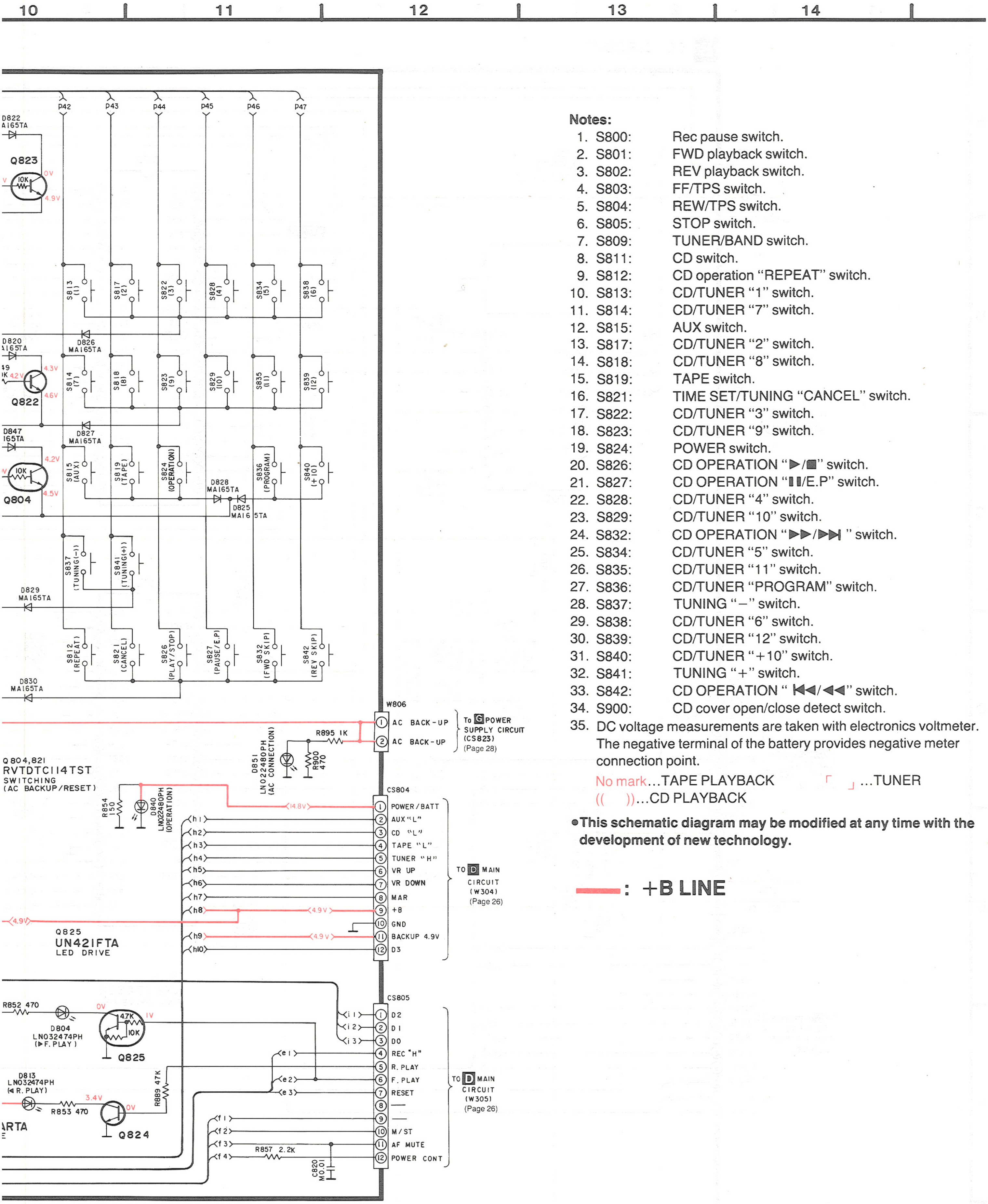
■ SCHEMATIC DIAGRAM •for CD Circuit (Parts list on pages 57~60.)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
B CD CIRCUIT
CP704
S1001 (LASER ON/OFF)
IC703 AN8377N MOTOR DRIVE
IC701
IC701 AN8373SE2 CD SERVO SYSTEM
Q701 2SA1309STA LASER AMP
TP708
TP706
TP703
TP705
TP704
TP701
R721 470
C730 16V22
C706 M0.1
C711 J47P
C704 M0.1
C712 50V1
C710 50V1
C708 K680P
VR701 10K(B)
VR702 20K(B)
VR703 10K(B)
VR704 10K(B)
C728 16V22
R720 1K
C701 6.3V470
C702 10V220
C713 50V1
C716 50V1
C715 K0.033
C717 K0.033
R712 1K
R713 1K
R701 4.7K
CP702
TRAVERS MOTOR
M
TD-
TD+
FD-
FD+
TVD-
TVD+
RESET
PC
VREF
TDI
FDI
TVDI
VMON
TB
Vcc
PVcc
C703
R702 10K
R707 12K
R749 220K
D707 MA165TA
D708 MA165TA
C763 K470P
C705 16V10
R710 33K
R711 1M
R705 10K
R706 82K
R708 68K
C762 K470P
VR705 10K(B)
VR706 10K(B)
R715 2.2K
C720 50V0.47
R716 1K
C722 50V0.47
C721 M0.068
R717 100K
C723 10V22
C718 K1000P
C725 M0.1
C726 J0.33
C727 J0.47
C707 6.3V100
C761 6.3V470
C760 M0.1
IC702
IC702 AN8374SE2 PWM DRIVE/PLL
R755 22K
R746 22K
R752 5.6K
R751 5.6K
R750 5.6K
C757 16V10
C758 M0.1
CS703
CONT3
CONT2
CONT1
FLOCK
SENSE
MLD
MDATA
MCLK
GND
VDD
TO OPERATION LCD DRIVE CIRCUIT(W802) (Page 22)
CP703
S701 (REST SW)
CS702
REST
POWER
STATAS
D MUTE
SUBQ
CLDCK
BLKCK
TRV.R
TRV.F
CONT4
TO OPERATION LCD DRIVE CIRCUIT(W801) (Page 22)
IC704 MN6625 SIGNAL PROCESS
IC704
C735 J27P
C733 J27P
X701
R748 2.2K
R722 2.2K
R728 6.8K
R725 10K
R727 3.3K
R723 6.8K
IC706
AMP-1
C736 Z0.1
C737 6.3V470
R735 3.9K
R736 4.7K
C752 50V0.33
Q703
Q703 UN4110TA SWITCHING (DE-EMPHASIS)
47K
IC707 SM5807ESE2 DIGITAL FILTER
C742 6.3V100
C743 Z0.1
IC708 UPD6376 D/A CONV.
4.8V
7.2V
0.5V p-p 0.5µs 0.1V/DIV
0.8V p-p 1µs 0.2V/DIV
0.1V p-p 1µs 50mV/DIV
0.3V p-p 1ms 0.1V/DIV
1.2V p-p 0.5µs 0.5V
0.6V p-p 1ms 0.2V/DIV
20mV p-p 0.5ms 5mV/DIV
0.5V p-p 0.5µs 0.1V/DIV
5.2V p-p 5µs 2V/DIV
5.5V p-p 0.1µs 2V/DIV
6V p-p 0.2µs 2V/DIV
0.8V p-p 1µs 0.2V/DIV
6V p-p 0.05µs 2V/DIV
5V p-p 0.02µs 2V/DIV
5V p-p 10µs 2V/DIV
5V p-p 0.2µs 2V/DIV
5V 0V 5ms 2V/DIV
5V 0V 0.1ms 2V/DIV
5V p-p 0.02µs 2V/DIV
5V p-p 10ms 2V/DIV
5.2V p-p 5µs 2V/DIV
5V 0V 2ms 2V/DIV
5.5V p-p 0.1µs 2V/DIV
6V p-p 0.2µs 2V/DIV
6V p-p 0.2µs 2V/DIV
6V p-p 0.2µs 2V/DIV
0.8V p-p 1µs 0.2V/DIV
5.5V p-p 0.1µs 2V/DIV
6V p-p 0.05µs 2V/DIV
6V p-p 0.05µs 2V/DIV


10
11
12
13
14
CP705
VREF(GND)
TP(FE,0)
TP(TE,0)
TEST CONNECTOR
4.8V
7.2V
IC706
IC706
TA8410P
MOTOR DRIVE
AMP-1
AMP-2
R725 10K
R727 3.3K
R723 6.8K
R732 5.6K
R733 47K
C738 16V10
R728 6.8K
R726 5.6K
C741 M0.01
5V p-p
0.1μs. 2V/DIV.
CP701
SPINDLE MOTOR
OPTICAL PICKUP CIRCUIT
CS705
FD+
FD−
TD+
TD−
GND
PD
LD
+4.8V
RF
+4.8V
A1
A4
A2
A3
GND
IC705
IC705
LC3517BMLTP
DE INTERLEAVE
VDD
A7
A6
A5
A4
A3
A2
A1
A0
D0
D1
D2
Vss
A8
A9
WE
OE
A10
CS
D7
D6
D5
D4
D3
6V p-p
0.2μs. 2V/DIV.
IC708
RREF
L REF
L.OUT
A.GND
LRCK
LRSEL
SI
CLK
A.VDD
A.VDD
R.OUT
A.GND
D.VDD
D.VDD
D.GND
NC
C742 6.3V100
IC708
UPD6376GSE2
D/A CONV./BUFFER AMP
2V p-p
0.5ms. 1V/DIV.
Q704,705
UN4216TA
SWITCHING (DE-EMPHASIS)
R741 1K
R737 1K
C747 M3300P
C748 K0.033
R743 470
Q704
R738 100K
C756 M3300P
C751 K0.033
C753 50V1
C755 50V1
R740 470
Q705
R742 100K
C750 6.3V100
R745 47
CS701
L ch OUT
GND
R ch OUT
GND
+7.2V
+4.8V
TO D MAIN CIRCUIT (W312)
(Page 27)

SCHEMATIC DIAGRAM •for LCD/Key Operation Circuit (Parts list on pages 57~60.)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
C OPERATION/LCD DRIVE CIRCUIT
Z801 LCD DISPLAY (RSL5C22-L)
Z800 AIQH3029HO (REMOTE SENSOR)
S900 (OPEN/CLOSE)
CP803
Q800~802 RVTDTA114TST INTERFACE
IC800 M50932-179FP SYSTEM CONTROL/ LCD DRIVE
Q822 2SC3311RTA SWITCHING (OPEN/CLOSE)
Q820, 823 RVTDTC114TST SWITCHING (REC PAUSE/F.PLAY)
(REC PAUSE) D803 LN032474PH
CW800
TO A TUNER CIRCUIT (CP1) (Page 18)
CE
DI
CL
M/ST
GND
ST LED
RADIO +B
TUNE LED
Q800
Q801
Q802
Q814 RVTDTC114EST MUTING
Q814
W801
TO B CD CIRCUIT (CS702) (Page 19)
REST
POWER
STATAS
D MUTE
SUBQ
CLOCK
BLKCK
TRV.R
TRV.F
CNT 4
W802
TO B CD CIRCUIT (CS703) (Page 19)
CNT3
CNT2
CNT1
FLOCK
SENSE
MLD
MDATA
MCLK
GND
VDD
Q812
Q813
Q812, 813 RVTDTC114TST INTERFACE
IC801
IC801 S8054HN-T RESET SIGNAL GENERATOR
IC800
Q807
Q808
Q807 RVTDTA114EST POWER SUPPLY
Q808 RVTDTC114EST POWER SUPPLY CONT.
Q816
Q816 RVTDTA114EST SWITCHING (TUNER: ON)
IC802
IC802 M50253P SYSTEM CONT.
INPUT SELECT
LATCH
12BIT SHIFT REGISTOR
BUFFER
Q819 2SC3311RTA SWITCHING
Q804, 821 RVTDTC114TST SWITCHING (AC BACKUP/RESET)
Q825 UN421FTA LED DRIVE
Q824 2SC3311ARTA LED DRIVE
D804 LN032474PH (▷F.PLAY)
D813 LN032474PH (◁R.PLAY)
S809 (TUNER/BAND)
S801 (▷F.PLAY)
S800 (●II REC PAUSE)
S802 (◁R.PLAY)
S803 (▷▷FF)
S804 (◁◁REW)
S805 (■STOP)
S837 (TUNING(-))
S841 (TUNING(+))
S812 (REPEAT)
S821 (CANCEL)
S811 (CD)
S815 (AUX)
S819 (TAPE)
S814 (7)
S818 (8)
S813 (1)
S817 (2)
4.9V
P40
P41
P42
P43


10
11
12
13
14
P42
P43
P44
P45
P46
P47
D822 MA165TA
Q823
10K
0V
4.9V
S813 (1)
S817 (2)
S822 (3)
S828 (4)
S834 (5)
S838 (6)
D820 MA165TA
D826 MA165TA
Q822
4.3V
4.2V
4.6V
S814 (7)
S818 (8)
S823 (9)
S829 (10)
S835 (11)
S839 (12)
D847 MA165TA
D827 MA165TA
Q804
4.2V
4.5V
S815 (AUX)
S819 (TAPE)
S824 (OPERATION)
D828 MA165TA
S836 (PROGRAM)
S840 (+10)
D825 MA165TA
S837 (TUNING(−))
S841 (TUNING(+))
D829 MA165TA
S812 (REPEAT)
S821 (CANCEL)
S826 (PLAY/STOP)
S827 (PAUSE/E.P)
S832 (FWD SKIP)
S842 (REV SKIP)
D830 MA165TA
W806
AC BACK-UP
AC BACK-UP
R895 1K
To G POWER SUPPLY CIRCUIT (CS823) (Page 28)
D851 LN02248OPH (AC CONNECTION)
R900 470
Q804,821 RVTDTC114TST SWITCHING (AC BACKUP/RESET)
R854 150
D840 LN02248OPH (OPERATION)
CS804
14.8V
POWER/BATT
AUX "L"
CD "L"
TAPE "L"
TUNER "H"
VR UP
VR DOWN
MAR
+B
GND
BACKUP 4.9V
D3
TO D MAIN CIRCUIT (W304) (Page 26)
4.9V
Q825 UN421FTA LED DRIVE
CS805
D2
D1
D0
REC "H"
R.PLAY
F.PLAY
RESET
M/ST
AF MUTE
POWER CONT
TO D MAIN CIRCUIT (W305) (Page 26)
R852 470
D804 LN03247 4PH (▶F. PLAY)
47K
10K
1V
Q825
D813 LN03247 4PH (◀R. PLAY)
3.4V
R853 470
Q824
R889 47K
R857 2.2K
C820 M0.01
ARTA

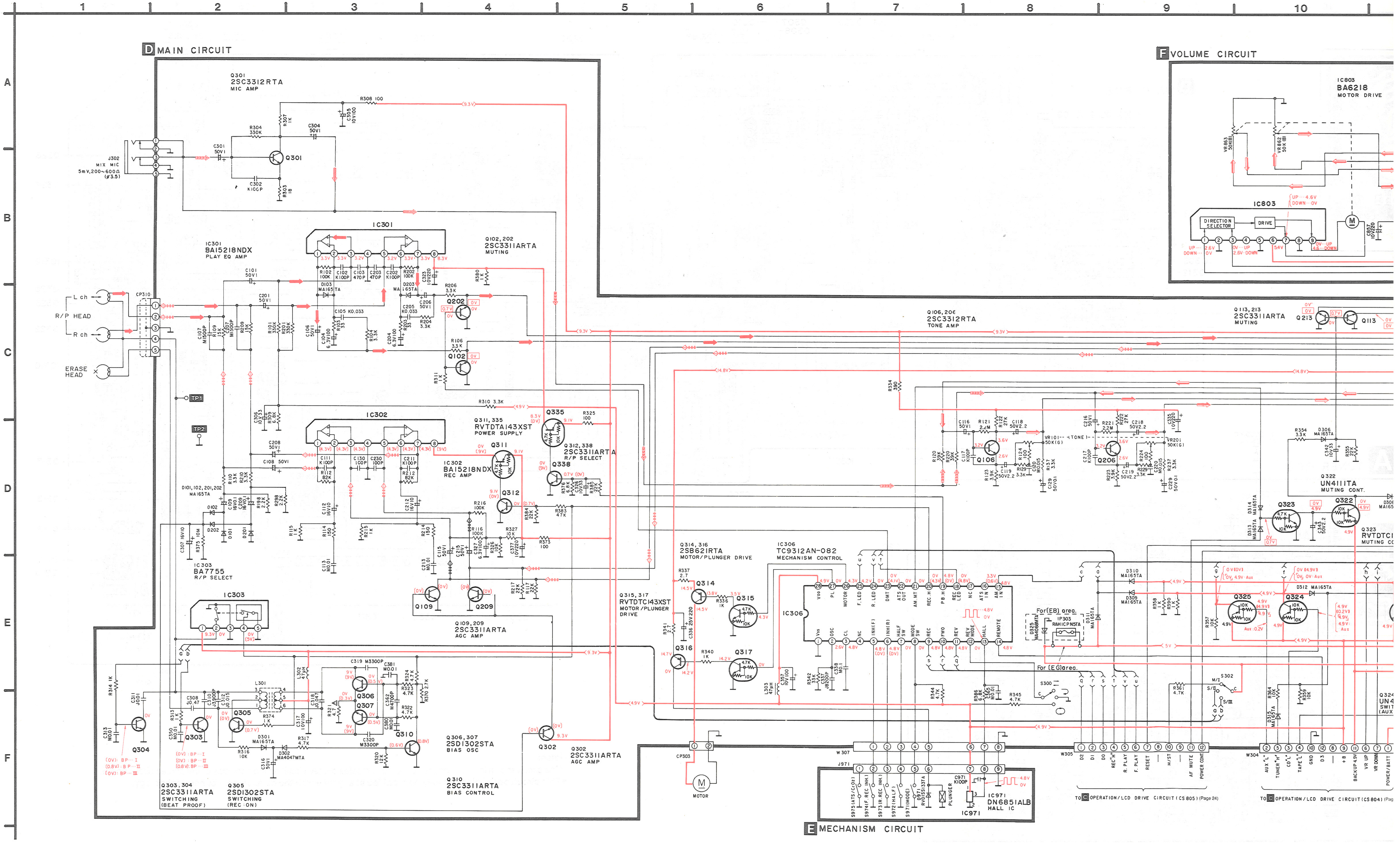
Notes:

1. S800: Rec pause switch.
2. S801: FWD playback switch.
3. S802: REV playback switch.
4. S803: FF/TPS switch.
5. S804: REW/TPS switch.
6. S805: STOP switch.
7. S809: TUNER/BAND switch.
8. S811: CD switch.
9. S812: CD operation "REPEAT" switch.
10. S813: CD/TUNER "1" switch.
11. S814: CD/TUNER "7" switch.
12. S815: AUX switch.
13. S817: CD/TUNER "2" switch.
14. S818: CD/TUNER "8" switch.
15. S819: TAPE switch.
16. S821: TIME SET/TUNING "CANCEL" switch.
17. S822: CD/TUNER "3" switch.
18. S823: CD/TUNER "9" switch.
19. S824: POWER switch.
20. S826: CD OPERATION "▶/■" switch.
21. S827: CD OPERATION "❚❚/E.P" switch.
22. S828: CD/TUNER "4" switch.
23. S829: CD/TUNER "10" switch.
24. S832: CD OPERATION "▶▶/▶▶❙" switch.
25. S834: CD/TUNER "5" switch.
26. S835: CD/TUNER "11" switch.
27. S836: CD/TUNER "PROGRAM" switch.
28. S837: TUNING "−" switch.
29. S838: CD/TUNER "6" switch.
30. S839: CD/TUNER "12" switch.
31. S840: CD/TUNER "+10" switch.
32. S841: TUNING "+" switch.
33. S842: CD OPERATION "❙◀◀/◀◀" switch.
34. S900: CD cover open/close detect switch.
35. DC voltage measurements are taken with electronics voltmeter. The negative terminal of the battery provides negative meter connection point.
    No mark…TAPE PLAYBACK 「 」…TUNER
    (( ))…CD PLAYBACK

•This schematic diagram may be modified at any time with the development of new technology.

▬ : +B LINE

■ SCHEMATIC DIAGRAM •for Main, Mechanism, Volume and Power Supply Circuit (Parts list on pages 55~60.)


1
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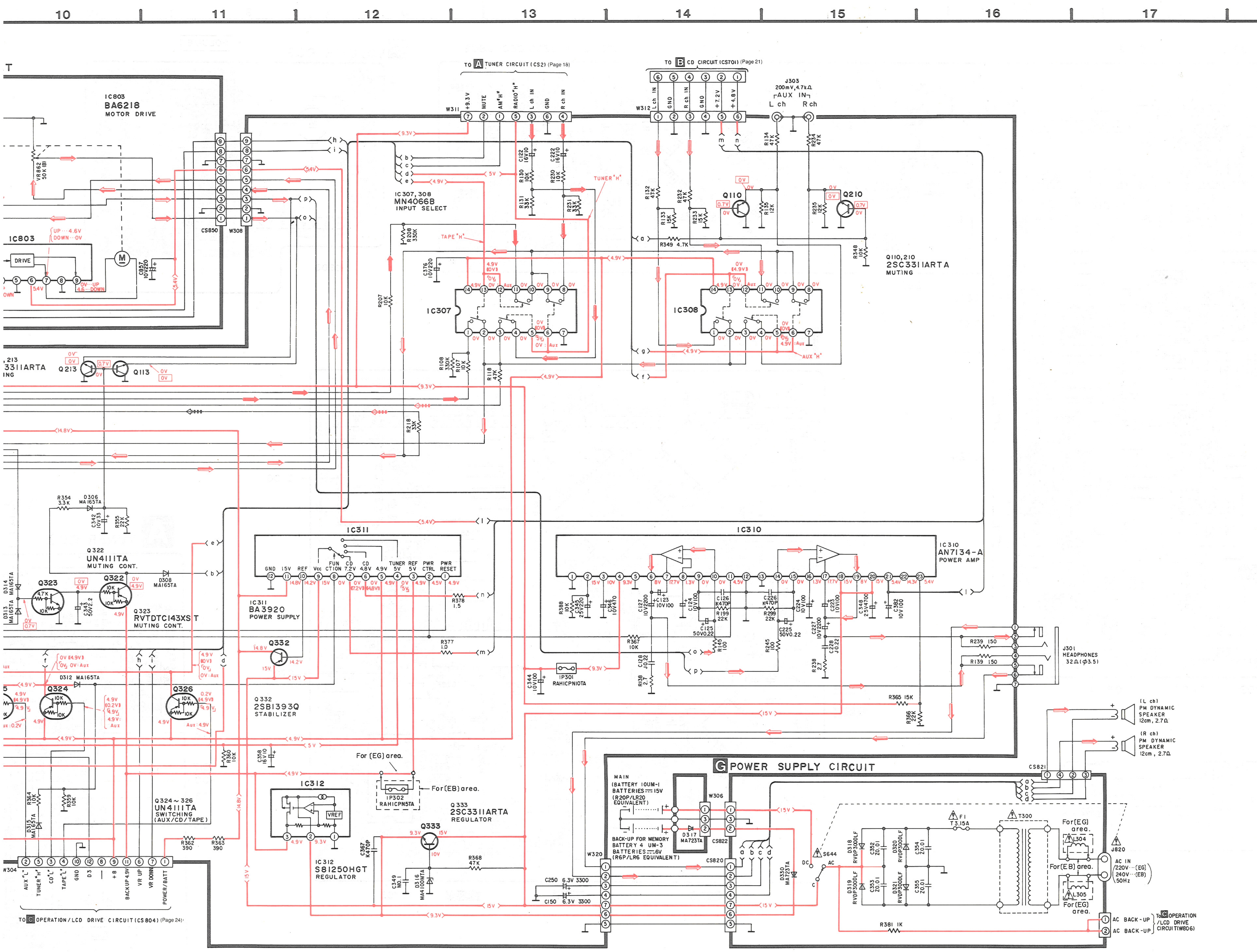
5
6
7
8
9
10
A
B
C
D
E
F
D MAIN CIRCUIT
F VOLUME CIRCUIT
E MECHANISM CIRCUIT
Q301 2SC3312RTA MIC AMP
J302 MIX MIC 5mV,200~600Ω (φ3.5)
IC301 BA15218NDX PLAY EQ AMP
IC301
Q102, 202 2SC3311ARTA MUTING
L ch
R/P HEAD
R ch
ERASE HEAD
CP310
TP1
TP2
IC302
Q311, 335 RVTDTA143XST POWER SUPPLY
Q312, 338 2SC3311ARTA R/P SELECT
IC302 BA15218NDX REC AMP
D101, 102, 201, 202 MA165TA
IC303 BA7755 R/P SELECT
IC303
Q109, 209 2SC3311ARTA AGC AMP
Q314, 316 2SB621RTA MOTOR/PLUNGER DRIVE
Q315, 317 RVTDTC143XST MOTOR/PLUNGER DRIVE
IC306 TC9312AN-082 MECHANISM CONTROL
IC306
Q106, 206 2SC3312RTA TONE AMP
Q113, 213 2SC3311ARTA MUTING
IC803 BA6218 MOTOR DRIVE
IC803
DIRECTION SELECTOR
DRIVE
VR101 TONE VR201
Q322 UN4111TA MUTING CONT.
Q323 RVTDTC1 MUTING CO
D310 MA165TA
D309 MA165TA
D312 MA165TA
For (EB) area.
IP303 RAH1CPN5TA
For (EG) area.
S300
S302
M/I
Q303, 304 2SC3311ARTA SWITCHING (BEAT PROOF)
Q305 2SD1302STA SWITCHING (REC·ON)
Q306, 307 2SD1302STA BIAS OSC
Q310 2SC3311ARTA BIAS CONTROL
Q302 2SC3311ARTA AGC AMP
L301
D301 MA165TA
D302 MA4047MTA
CP303
MOTOR
W307
J971
W305
W304
IC971 DN6851ALB HALL IC
IC971
TO C OPERATION/LCD DRIVE CIRCUIT (CS805) (Page 24)
TO C OPERATION/LCD DRIVE CIRCUIT (CS804)
(0V) : BP…I
(0.8V) : BP…II
(0V) : BP…III


10
11
12
13
14
15
16
17
18
19
IC803
BA6218
MOTOR DRIVE
TO A TUNER CIRCUIT (CS21) (Page 18)
TO B CD CIRCUIT (CS701) (Page 21)
J303
200mV, 4.7kΩ
AUX IN
L ch
R ch
IC307, 308
MN4066B
INPUT SELECT
IC307
IC308
Q110
Q210
Q110, 210
2SC3311ARTA
MUTING
Q213
Q113
2SC3311ARTA
MUTING
TAPE "H"
TUNER "H"
AUX "H"
IC311
BA3920
POWER SUPPLY
IC310
AN7134-A
POWER AMP
Q322
UN4111TA
MUTING CONT.
Q323
RVTDTC143XS T
MUTING CONT.
Q332
2SB1393Q
STABILIZER
Q324
Q326
Q324～326
UN4111TA
SWITCHING
(AUX/CD/TAPE)
IC312
S81250HGT
REGULATOR
Q333
2SC3311ARTA
REGULATOR
For (EG) area.
For (EB) area.
IP301
RAHICPN10TA
IP302
RAHICPN5TA
J301
HEADPHONES
32Ω (φ3.5)
(L ch)
PM DYNAMIC
SPEAKER
12cm, 2.7Ω
(R ch)
PM DYNAMIC
SPEAKER
12cm, 2.7Ω
G POWER SUPPLY CIRCUIT
MAIN
(BATTERY 10UM-1
BATTERIES ⎓ 15V
(R20P/LR20
EQUIVALENT)
BACK-UP FOR MEMORY
BATTERY 4 UM-3
BATTERIES ⎓ 6V
(R6P/LR6 EQUIVALENT)
S644
DC
AC
F1
T3.15A
T300
J820
AC IN
(220V…(EG)
(240V…(EB)
(50Hz
For (EG) area.
For (EB) area.
L304
L305
TO C OPERATION /LCD DRIVE CIRCUIT (W806)
AC BACK-UP
TO C OPERATION / LCD DRIVE CIRCUIT (CS804) (Page 24)
W304
CS850
W308
W311
W312
W306
W320
CS820
CS821
CS822

Notes:

1. S300: Reverse mode switch in "⇄" position.
2. S302: FM mode select/Beat proof switch in "MONO/ ▮ ".
   (M/▮...MONO/ ▮ , S/▮▮...STEREO/▮▮,
   S/▮▮▮...STEREO/▮▮▮)
3. S644: AC/DC select switch in "AC" position.
4. S971: Mode detect switch.
5. S972: Cassette tape insertion detect switch.
6. S973: Record prevention tab detect switch (FWD).
7. S974: Record prevention tab detect switch (REV).
8. VR101,
   VR201: Tone control VR.
9. VR862,
   VR863: Volume control VR.
10. DC voltage measurements are taken with electronics voltmeter. The negative terminal of the battery provides negative meter connection point.

    No mark...PLAYBACK [ ]...RECORD
    ▭...MUTING (( ))...CD ⌜ ⌟...TUNER
11. Battery Current:

Vol. min	230 mA (Tape Playback)
	160 mA (Tuner)
	360 mA (CD)
Vol. max	1460 mA (Tape Playback)
	1190 mA (Radio)
	1680 mA (CD)

Measurement instruction

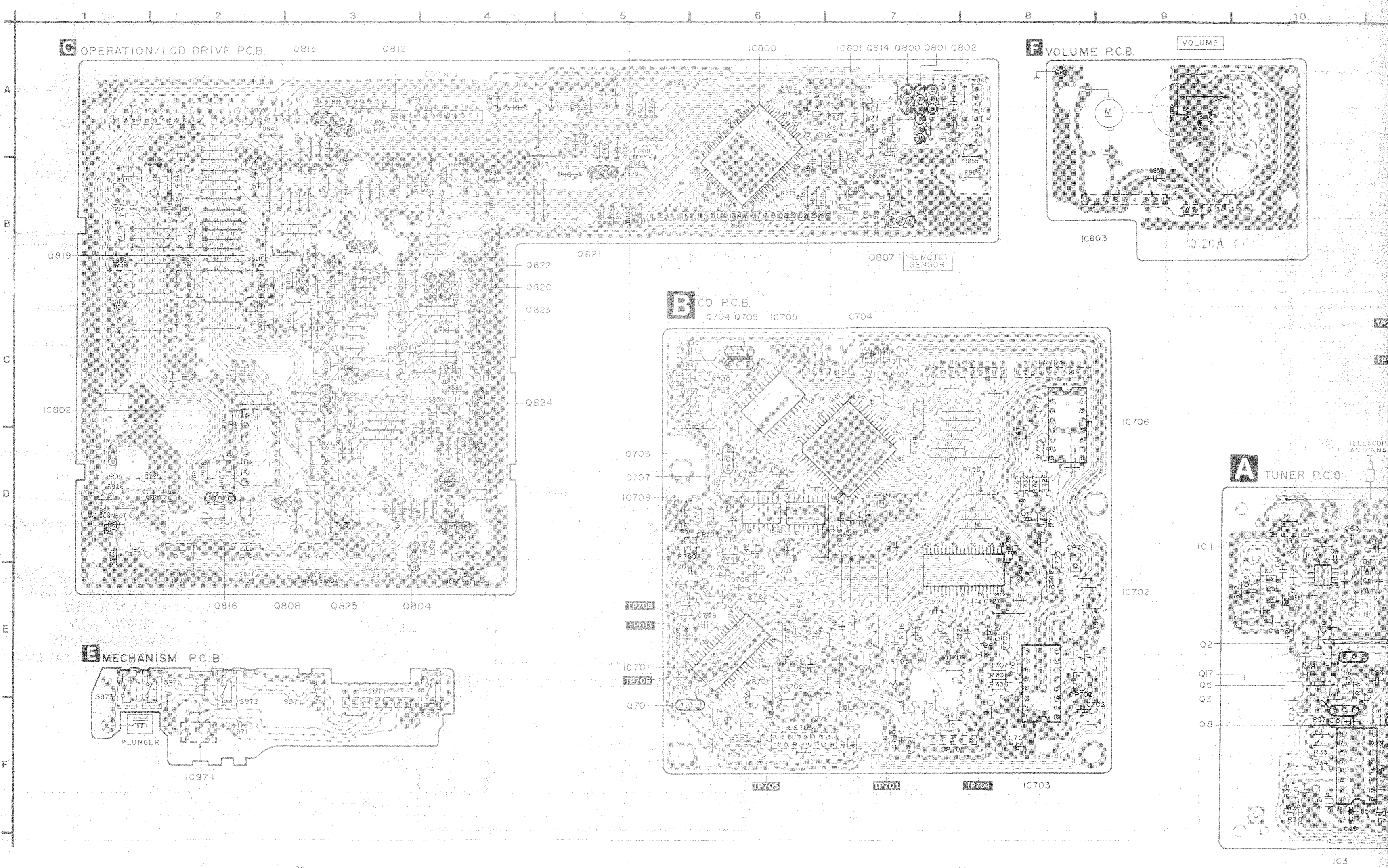
Tape:	315 Hz, 0 dB
Radio:	FM 60 dB, 30% Mod.
CD:	1 kHz, 0 dB

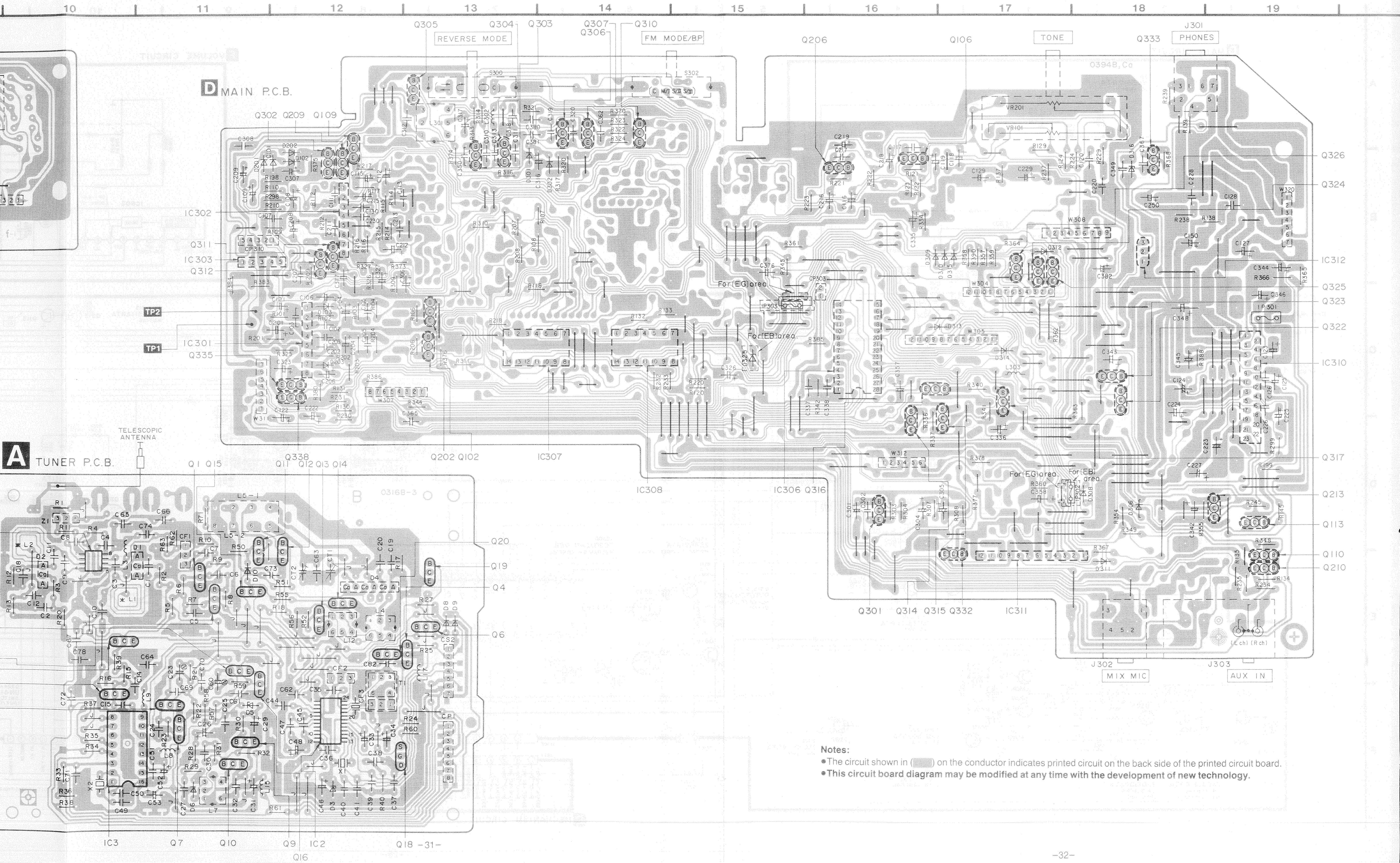
12. Important safety notice.
    Components identified by ⚠ mark have special characteristics important for safety.
    When replacing any of these components, use only manufacturer's specified parts.
13. The mark (■) shows test point e.g. TP1 =test point 1.

●This schematic diagram may be modified at any time with the development of new technology.

➡ : **PLAYBACK SIGNAL LINE**
⇨ : **RECORD SIGNAL LINE**
⇨ : **MIC SIGNAL LINE**
⇨ : **CD SIGNAL LINE**
⇨ : **MAIN SIGNAL LINE**
⇨ : **FM/MW/LW SIGNAL LINE**
━ : **+B LINE**

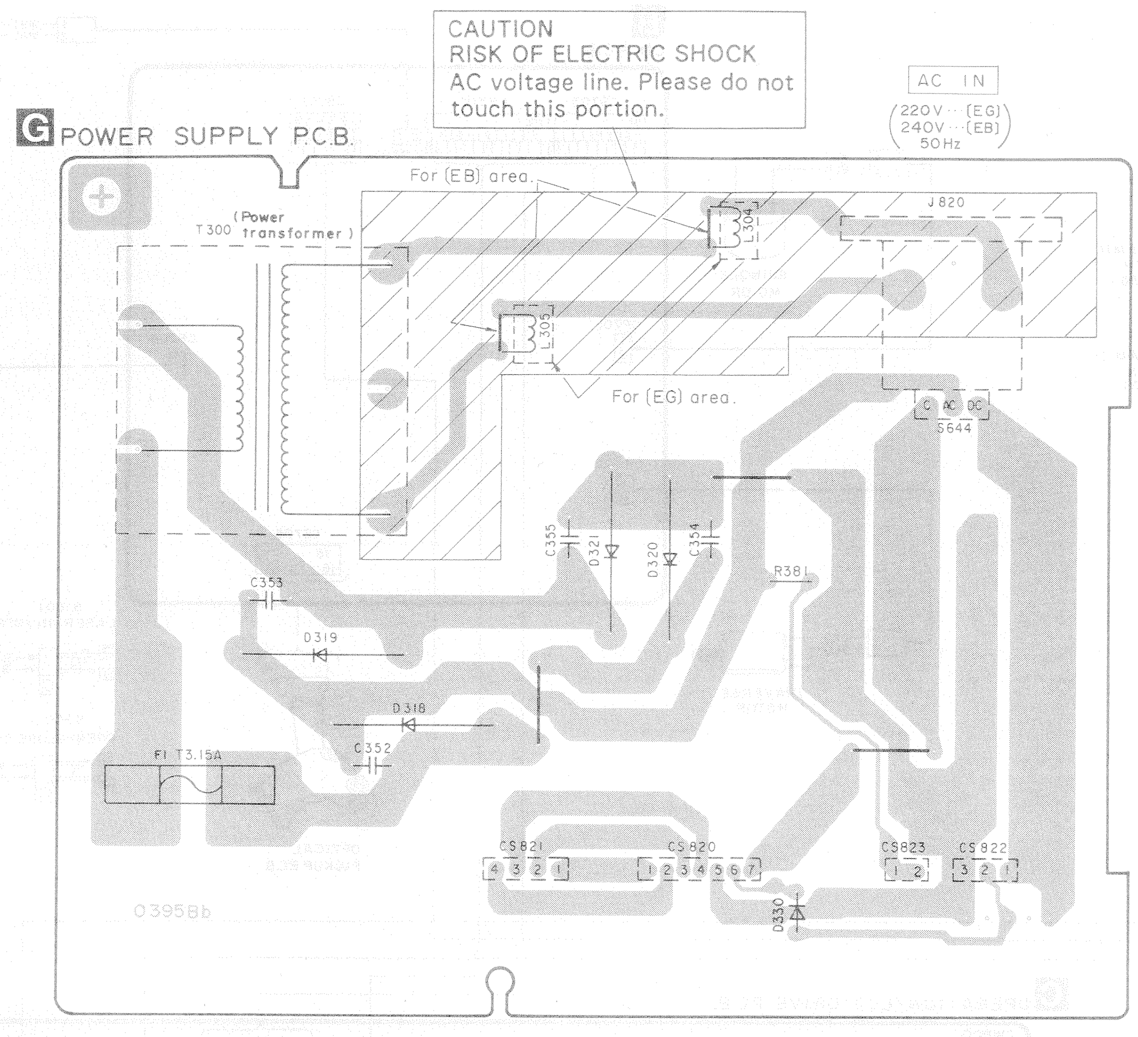
■ CIRCUIT BOARD DIAGRAM

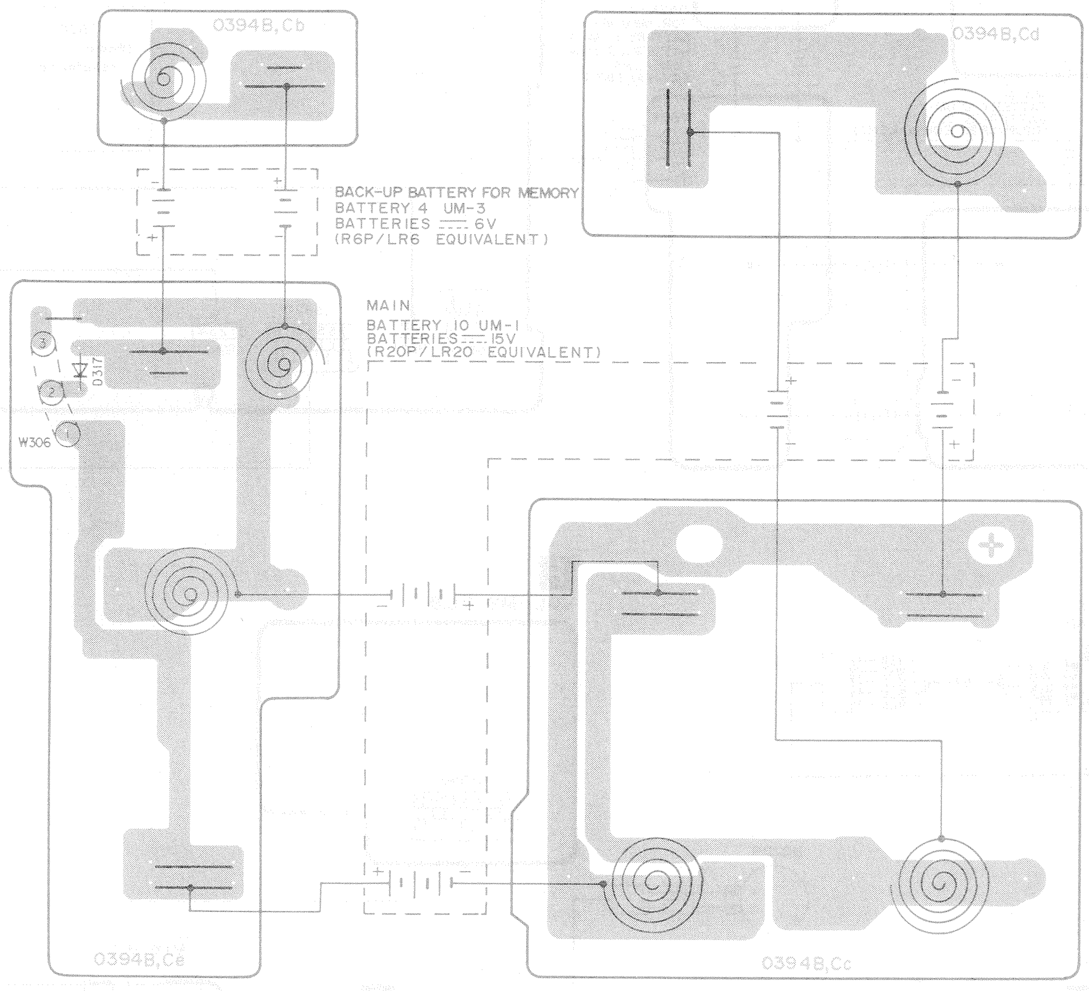

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
C OPERATION/LCD DRIVE P.C.B.
Q813
Q812
IC800
IC801
Q814
Q800
Q801
Q802
Q819
Q822
Q820
Q823
Q824
IC802
Q821
Q807
REMOTE SENSOR
Q816
Q808
Q825
Q804
S826
S827
S828
S832
S842
S812 (REPEAT)
S841 (TUNING)
S837
S838
S834
S839
S835
S829
S822
S817
S813
S823
S818
S814
S821 (CANCEL)
S836 (PROGRAM)
S840
S801
S802
S803
S804
S805
S800
S815 (AUX)
S811 (CD)
S809 (TUNER/BAND)
S819 (TAPE)
S824 (OPERATION)
D851 (AC CONNECTION)
W806
W802
W801
CS804
CS805
CW800
Z800
Z801
X800
F VOLUME P.C.B.
VOLUME
M
VR862
VR863
IC803
C857
C850
0120A
B CD P.C.B.
Q704
Q705
IC705
IC704
IC706
Q703
IC707
IC708
IC702
IC701
Q701
IC703
CS701
CS702
CS703
CS705
CP703
CP704
CP701
CP702
CP705
X701
VR701
VR702
VR703
VR704
VR705
VR706
TP708
TP703
TP706
TP705
TP701
TP704
E MECHANISM P.C.B.
S973
S975
S972
S971
S974
J971
D971
C971
PLUNGER
IC971
A TUNER P.C.B.
TELESCOPIC ANTENNA
IC1
Q2
Q17
Q5
Q3
Q8
IC3
X2
L1
L2

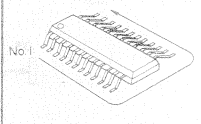

10
11
12
13
14
15
16
17
18
19
D MAIN P.C.B.
A TUNER P.C.B.
TELESCOPIC ANTENNA
REVERSE MODE
FM MODE/BP
TONE
PHONES
J301
J302
J303
MIX MIC
AUX IN
TP1
TP2
For(EG)area
For(EB)area
Q305
Q304
Q303
Q307
Q306
Q310
Q206
Q106
Q333
Q302
Q209
Q109
IC302
Q311
IC303
Q312
IC301
Q335
Q338
Q202
Q102
IC307
IC308
IC306
Q316
Q301
Q314
Q315
Q332
IC311
Q326
Q324
IC312
Q325
Q323
Q322
IC310
Q317
Q213
Q113
Q110
Q210
VR201
VR101
S300
S302
W308
W304
W305
W312
W311
W307
W320
IP301
IP303
L303
0394B,Co
0316B-3
Q1
Q15
Q11
Q12
Q13
Q14
Q20
Q19
Q4
Q6
IC3
Q7
Q10
Q9
IC2
Q16
Q18
L5-1
L5-2
CF1
CF2
CF3
CP1
X1
X2
L1
L2
Z1
(Lch) (Rch)

Notes:

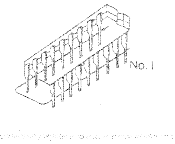
- The circuit shown in ( ) on the conductor indicates printed circuit on the back side of the printed circuit board.
- **This circuit board diagram may be modified at any time with the development of new technology.**


CAUTION
RISK OF ELECTRIC SHOCK
AC voltage line. Please do not touch this portion.
AC IN
220V ··· (EG)
240V ··· (EB)
50Hz
G POWER SUPPLY P.C.B.
For (EB) area.
For (EG) area.
(Power transformer)
T300
L304
L305
J820
C AC DC
S644
C355
D321
D320
C354
R381
C353
D319
D318
C352
F1 T3.15A
CS821
CS820
CS823
CS822
D330
0395Bb

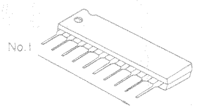

0394B,Cb
0394B,Cd
BACK-UP BATTERY FOR MEMORY
BATTERY 4 UM-3
BATTERIES ⎓ 6V
(R6P/LR6 EQUIVALENT)
MAIN
BATTERY 10 UM-1
BATTERIES ⎓ 15V
(R20P/LR20 EQUIVALENT)
D317
W306
0394B,Ce
0394B,Cc



AN8373SE2	42Pin	TA8132F	24Pin
AN8374SE2	42Pin	UPD6376GSE2	16Pin
LC3517BMLTP	24Pin		
RVITA7358FT	8 Pin		
SM5807ESE2	16Pin		

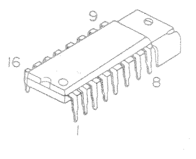


LM7001	16Pin
MN4066B	14Pin
M50253P	16Pin
TA8410P	16Pin
TC9312AN-082	28Pin

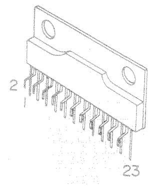


BA15218NDX	8 Pin
BA7755	5 Pin

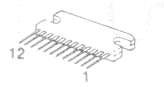
AN8377N



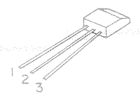
AN7134-A



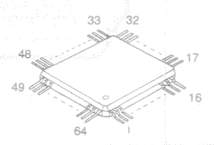
BA3920



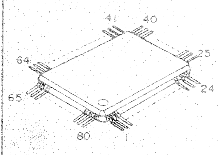
DN6851ALB



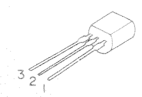
MN6625

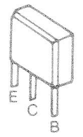

33
32
48
17
49
16
64
1

M50932-179FP


41
40
64
25
65
24
80
1

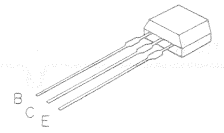
S8054HN-T
S81250HGT



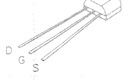


2SA1309STA
2SC3311ARTA
2SC3311RTA
2SC3312RTA
2SC3313BTA
UN4110TA
UN4111TA
UN4216TA

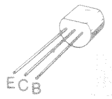
RVTDTA114TST
RVTDTC114EST
RVTDTA143XST



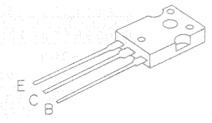
2SK381CTA



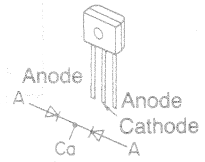
2SB621RTA
2SC1674LTA
2SD1302STA



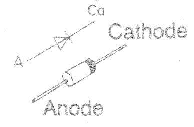
2SB1393Q



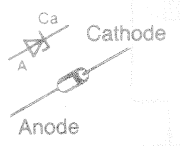
1SV147T4MATU
KV1560NT


Anode
A
Anode
Cathode
Ca
A

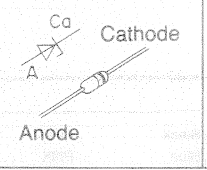
RVDP300DLF


Ca
Cathode
A
Anode

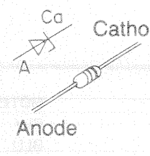
MA165TA
MA723TA


Ca
Cathode
A
Anode

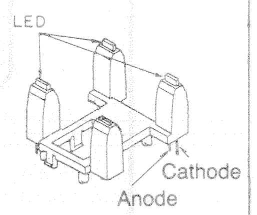
MA4100MTA
MA4130MTA


Ca
Cathode
A
Anode

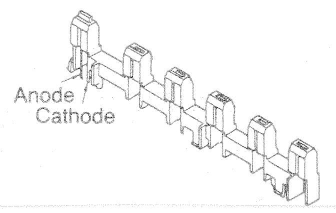
MA4047MTA
MA4051MTA


Ca
Cathode
A
Anode

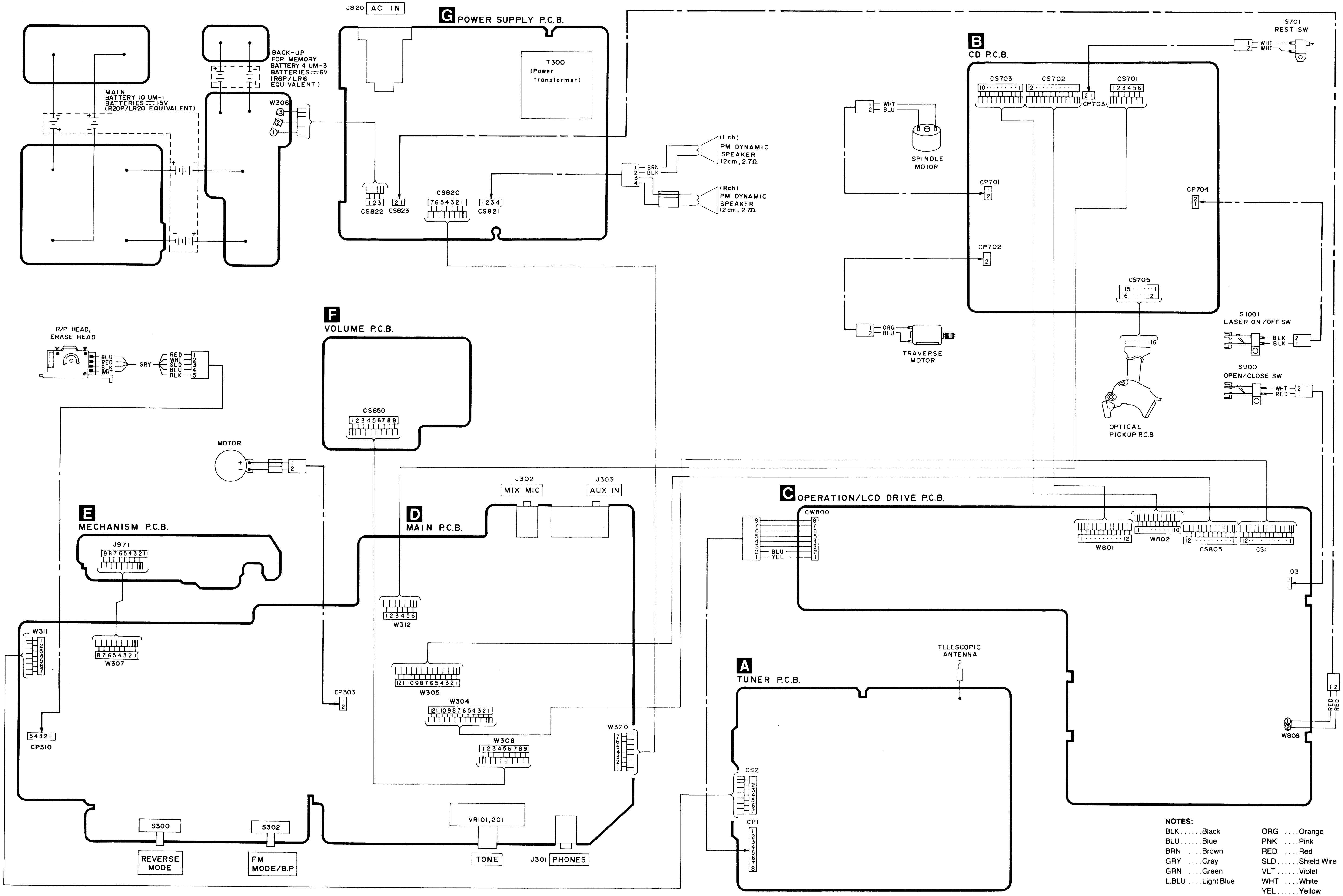
LN032474PH


LED
Cathode
Anode

LN022480PH


Anode
Cathode

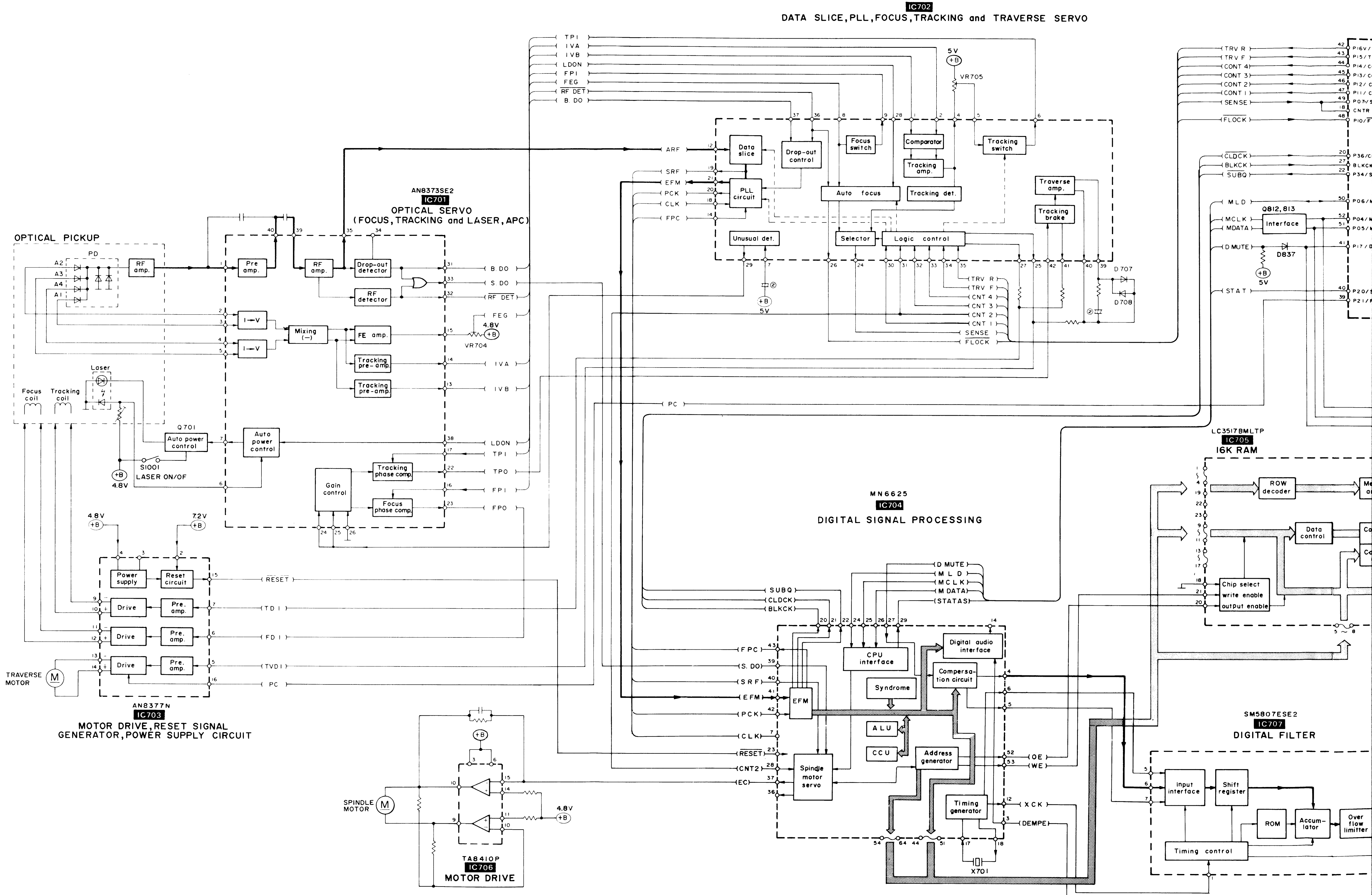
■ WIRING CONNECTION DIAGRAM

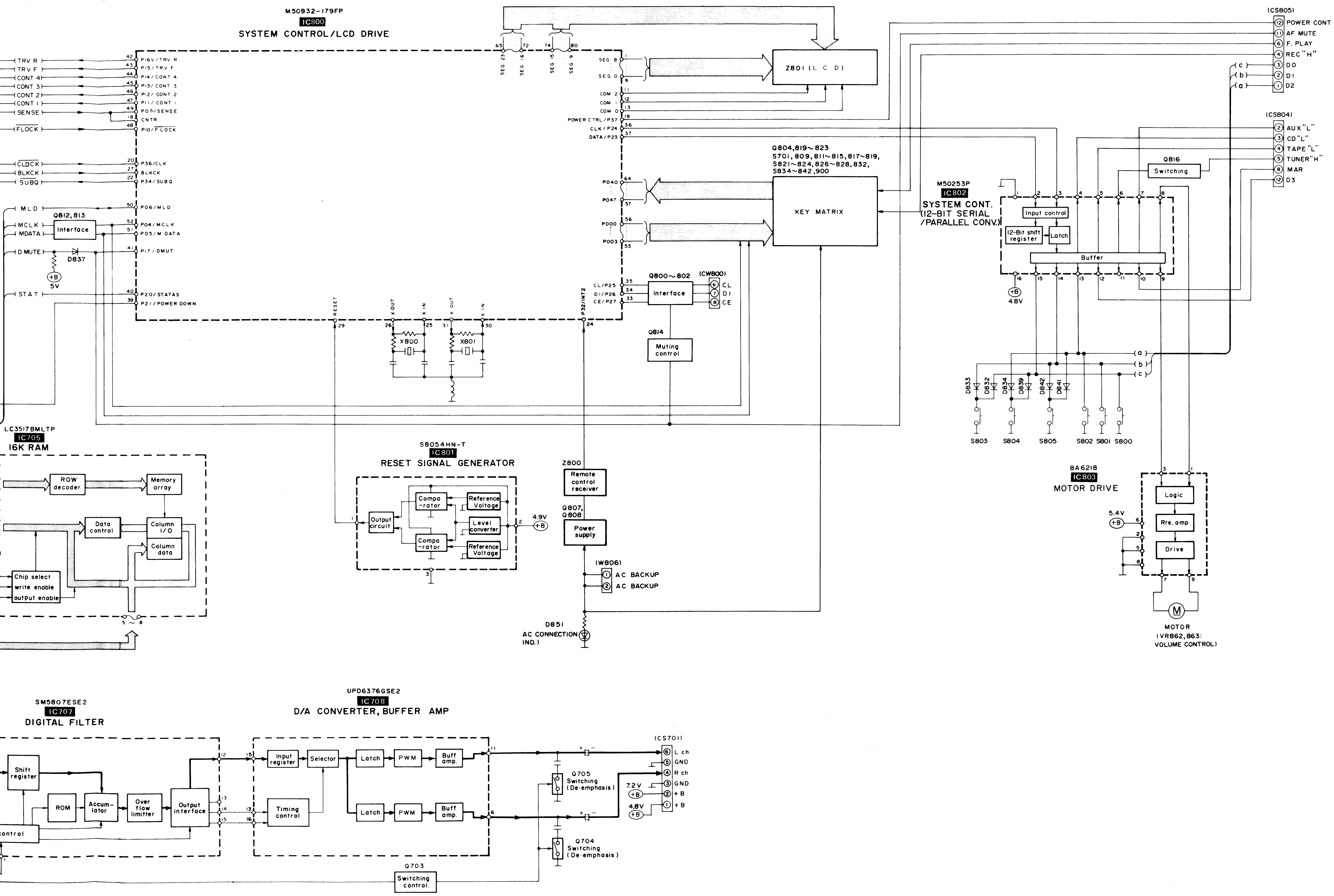

J820 AC IN
G POWER SUPPLY P.C.B.
T300 (Power transformer)
BACK-UP FOR MEMORY BATTERY 4 UM-3 BATTERIES ⎓ 6V (R6P/LR6 EQUIVALENT)
MAIN BATTERY 10 UM-1 BATTERIES ⎓ 15V (R20P/LR20 EQUIVALENT)
W306
CS822
CS823
CS820
CS821
(Lch) PM DYNAMIC SPEAKER 12cm, 2.7Ω
(Rch) PM DYNAMIC SPEAKER 12cm, 2.7Ω
BRN
BLK
B CD P.C.B.
CS703
CS702
CS701
CP703
CP701
CP702
CP704
CS705
S701 REST SW
WHT
BLU
SPINDLE MOTOR
ORG
TRAVERSE MOTOR
OPTICAL PICKUP P.C.B
S1001 LASER ON/OFF SW
S900 OPEN/CLOSE SW
RED
R/P HEAD, ERASE HEAD
GRY
SLD
F VOLUME P.C.B.
CS850
MOTOR
J302 MIX MIC
J303 AUX IN
C OPERATION/LCD DRIVE P.C.B.
CW800
YEL
W801
W802
CS805
W806
E MECHANISM P.C.B.
J971
D MAIN P.C.B.
W312
W311
W307
W305
W304
W308
W320
CP303
CP310
TELESCOPIC ANTENNA
A TUNER P.C.B.
CS2
CP1
S300
REVERSE MODE
S302
FM MODE/B.P
VR101,201
TONE
J301 PHONES

NOTES:

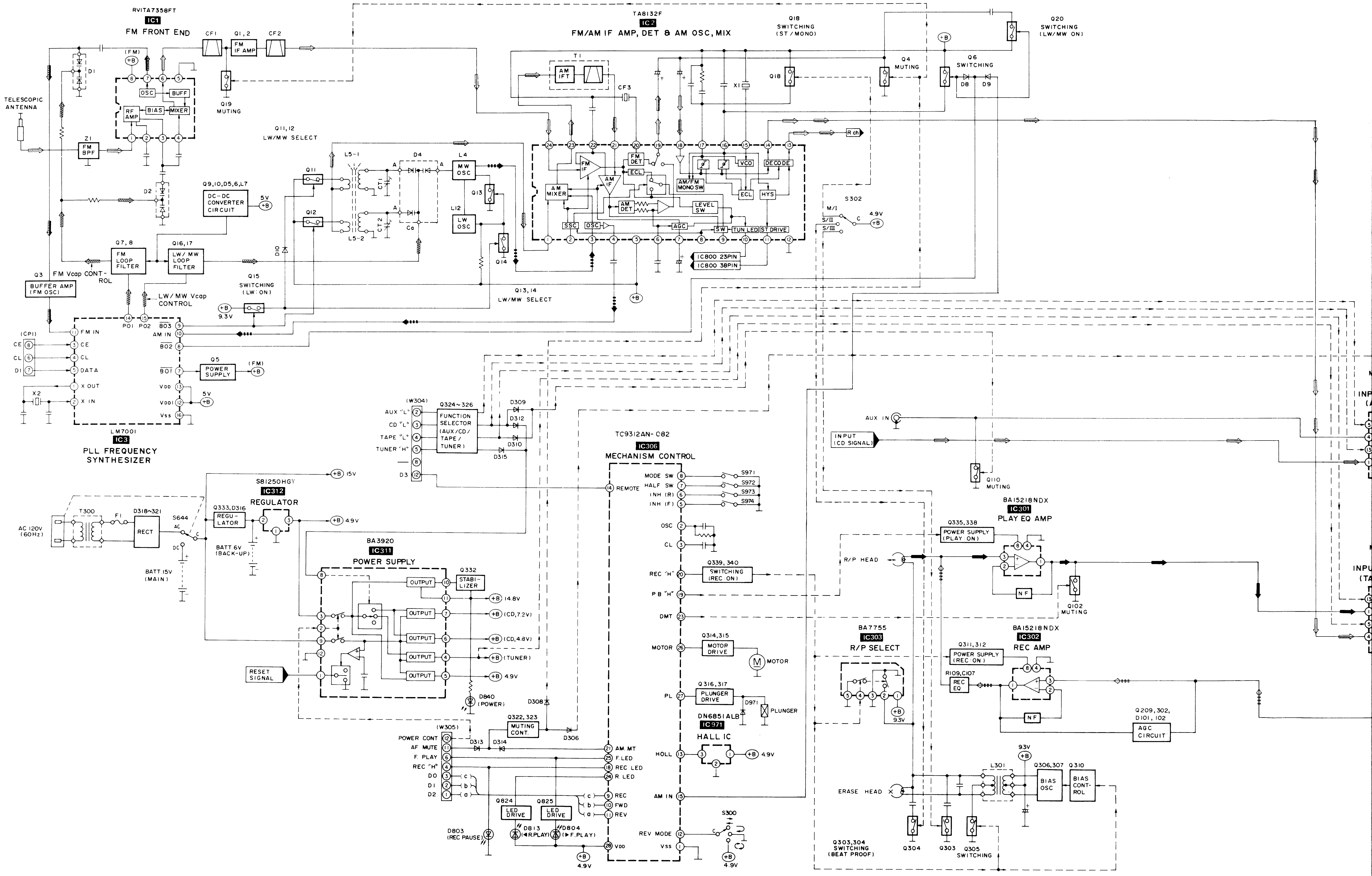
BLK	Black	ORG	Orange
BLU	Blue	PNK	Pink
BRN	Brown	RED	Red
GRY	Gray	SLD	Shield Wire
GRN	Green	VLT	Violet
L.BLU	Light Blue	WHT	White
		YEL	Yellow

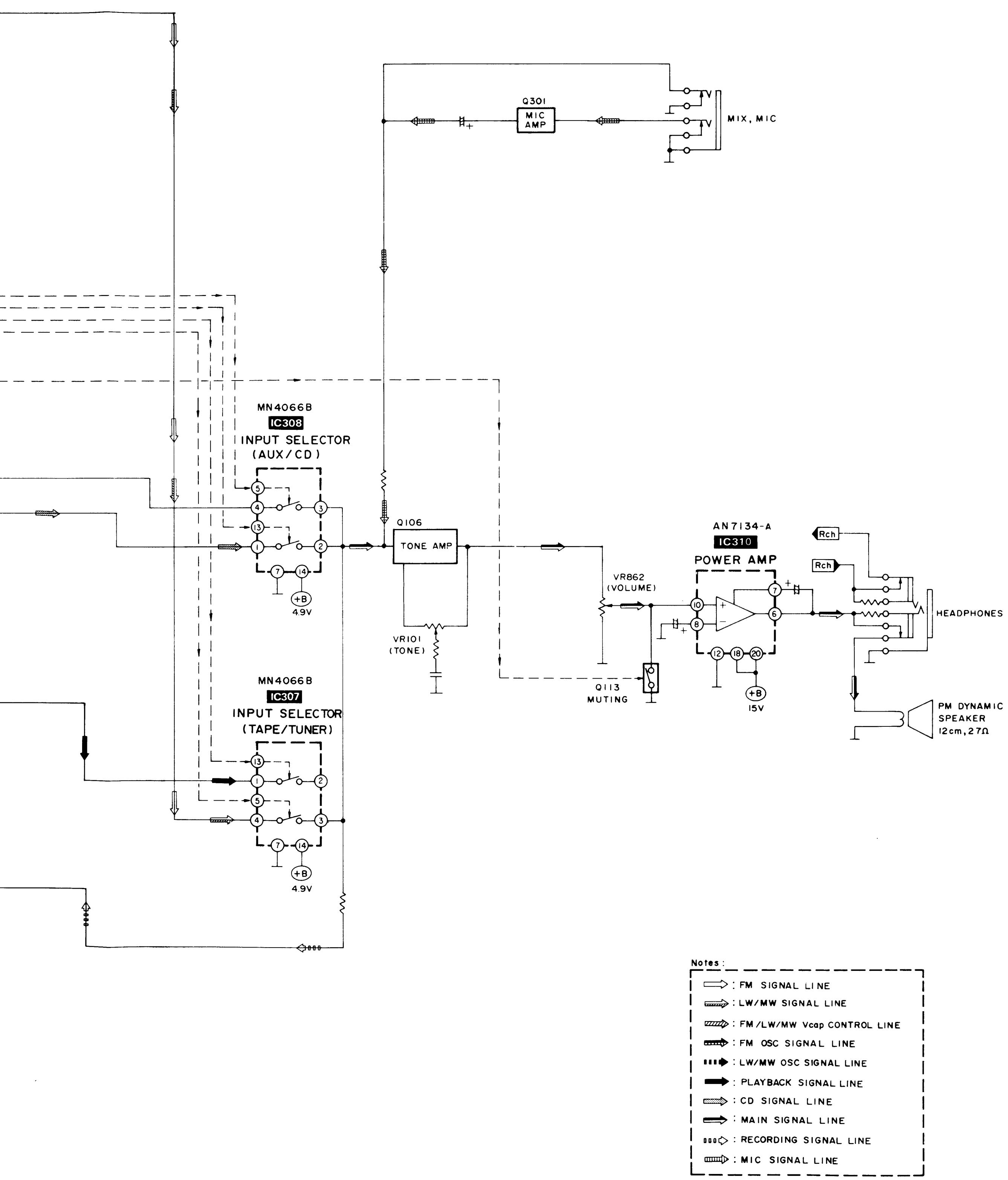
■ BLOCK DIAGRAM •CD Circuit


AN8374SE2
IC702
DATA SLICE, PLL, FOCUS, TRACKING and TRAVERSE SERVO
AN8373SE2
IC701
OPTICAL SERVO
(FOCUS, TRACKING and LASER, APC)
OPTICAL PICKUP
PD
A2
A3
A4
A1
RF amp.
Laser
Focus coil
Tracking coil
Pre amp.
RF amp.
Drop-out detector
RF detector
I→V
Mixing (−)
FE amp.
Tracking pre-amp.
Auto power control
Gain control
Tracking phase comp.
Focus phase comp.
Q701
S1001
LASER ON/OFF
4.8V
VR704
B DO
S DO
RF DET
FEG
IVA
IVB
LDON
TPI
TPO
FPI
FPO
7.2V
Power supply
Reset circuit
Drive
Pre. amp.
TRAVERSE MOTOR
AN8377N
IC703
MOTOR DRIVE, RESET SIGNAL GENERATOR, POWER SUPPLY CIRCUIT
RESET
TDI
FDI
TVDI
PC
SPINDLE MOTOR
TA8410P
IC706
MOTOR DRIVE
TPI
IVA
IVB
LDON
FPI
FEG
RF DET
B. DO
5V
VR705
ARF
SRF
EFM
PCK
CLK
FPC
Data slice
PLL circuit
Drop-out control
Focus switch
Comparator
Tracking amp.
Tracking switch
Auto focus
Tracking det.
Traverse amp.
Tracking brake
Unusual det.
Selector
Logic control
TRV R
TRV F
CNT 4
CNT 3
CNT 2
CNT 1
SENSE
FLOCK
D707
D708
MN6625
IC704
DIGITAL SIGNAL PROCESSING
D MUTE
M L D
M C L K
M DATA
STATAS
SUBQ
CLDCK
BLKCK
FPC
S. DO
SRF
EFM
PCK
CLK
RESET
CNT2
EC
EFM
CPU interface
Digital audio interface
Compersation circuit
Syndrome
ALU
CCU
Spindle motor servo
Address generator
Timing generator
X701
OE
WE
XCK
DEMPE
TRV R
TRV F
CONT 4
CONT 3
CONT 2
CONT 1
SENSE
FLOCK
CLDCK
BLKCK
SUBQ
MLD
MCLK
MDATA
D MUTE
STAT
Q812, 813
Interface
D837
5V
LC3517BMLTP
IC705
16K RAM
ROW decoder
Data control
Chip select
write enable
output enable
SM5807ESE2
IC707
DIGITAL FILTER
Input interface
Shift register
ROM
Accumulator
Over flow limitter
Timing control


M50932-179FP
IC800
SYSTEM CONTROL/LCD DRIVE
TRV R
TRV F
CONT 4
CONT 3
CONT 2
CONT 1
SENSE
FLOCK
CLDCK
BLKCK
SUBQ
MLD
MCLK
MDATA
D MUTE
STAT
Q812, 813
Interface
D837
+B
5V
P16V/TRV R
P15/TRV F
P14/CONT 4
P13/CONT 3
P12/CONT 2
P11/CONT 1
P07/SENSE
CNTR
P10/F LOCK
P36/CLK
BLKCK
P34/SUBQ
P06/MLD
P04/MCLK
P05/M DATA
P17/DMUT
P20/STATAS
P21/POWER DOWN
RESET
X OUT
X IN
X800
X801
P32/INT2
SEG 23
SEG 16
SEG 15
SEG 9
SEG 8
SEG 0
COM 2
COM 1
COM 0
POWER CTRL/P37
CLK/P24
DATA/P23
P040
P047
P000
P003
CL/P25
D1/P26
CE/P27
Z801 (L C D)
Q804, 819~823
S701, 809, 811~815, 817~819,
S821~824, 826~828, 832,
S834~842, 900
KEY MATRIX
Q800~802
Interface
(CW800)
CL
D1
CE
Q814
Muting control
(CS805)
POWER CONT
AF MUTE
F. PLAY
REC "H"
D0
D1
D2
(CS804)
AUX "L"
CD "L"
TAPE "L"
TUNER "H"
MAR
D3
Q816
Switching
M50253P
IC802
SYSTEM CONT.
(12-BIT SERIAL
/PARALLEL CONV.)
Input control
12-Bit shift register
Latch
Buffer
+B
4.8V
D833
D832
D834
D839
D842
D841
S803
S804
S805
S802
S801
S800
BA6218
IC803
MOTOR DRIVE
5.4V
Logic
Rre. amp
Drive
MOTOR
(VR862, 863:
VOLUME CONTROL)
LC3517BMLTP
IC705
16K RAM
ROW decoder
Memory array
Data control
Column I/O
Column data
Chip select
write enable
output enable
5 ~ 8
S8054HN-T
IC801
RESET SIGNAL GENERATOR
Output circuit
Compa-rator
Reference Voltage
Level converter
4.9V
Z800
Remote control receiver
Q807, Q808
Power supply
(W806)
AC BACKUP
AC BACKUP
D851
AC CONNECTION IND.
SM5807ESE2
IC707
DIGITAL FILTER
Shift register
ROM
Accum-lator
Over flow limitter
Output interface
control
UPD6376GSE2
IC708
D/A CONVERTER, BUFFER AMP
Input register
Selector
Latch
PWM
Buff amp.
Timing control
(CS701)
L ch
GND
R ch
GND
+B
+B
7.2V
4.8V
Q705
Switching
(De-emphasis)
Q704
Switching
(De-emphasis)
Q703
Switching control

■ BLOCK DIAGRAM


RVITA7358FT
IC1
FM FRONT END
CF1
Q1, 2
FM IF AMP
CF2
Q19
MUTING
OSC
BUFF
RF AMP
BIAS
MIXER
D1
(FM) +B
TELESCOPIC ANTENNA
Z1
FM BPF
D2
Q11, 12
LW/MW SELECT
Q9, 10, D5, 6, L7
DC-DC CONVERTER CIRCUIT
5V +B
L5-1
L5-2
D4
CT1
CT2
Ca
L4
MW OSC
L12
LW OSC
Q13
Q14
Q11
Q12
D10
Q7, 8
FM LOOP FILTER
Q16, 17
LW/MW LOOP FILTER
Q3
BUFFER AMP (FM OSC)
FM Vcap CONTROL
LW/MW Vcap CONTROL
Q15
SWITCHING (LW: ON)
9.3V +B
Q13, 14
LW/MW SELECT
P01
P02
B03
AM IN
B02
B01
FM IN
CE
CL
DATA
X OUT
X IN
VDD
VDD1
Vss
(CP1)
X2
Q5
POWER SUPPLY
(FM) +B
LM7001
IC3
PLL FREQUENCY SYNTHESIZER
TA8132F
IC2
FM/AM IF AMP, DET & AM OSC, MIX
T1
AM IFT
CF3
X1
FM IF
AM IF
FM DET
ECL
AM MIXER
AM DET
AM/FM MONO SW
LEVEL SW
VCO
DECODE
ECL
HYS
SSC
OSC
AGC
SW
TUN LED
ST DRIVE
IC800 23PIN
IC800 38PIN
R ch
Q18
SWITCHING (ST/MONO)
Q4
MUTING
Q6
SWITCHING
D8
D9
Q20
SWITCHING (LW/MW ON)
S302
M/I
S/II
S/III
C
4.9V +B
(W304)
Q324~326
FUNCTION SELECTOR (AUX/CD/TAPE/TUNER)
AUX "L"
CD "L"
TAPE "L"
TUNER "H"
D3
D309
D312
D310
D315
TC9312AN-C82
IC306
MECHANISM CONTROL
REMOTE
MODE SW
HALF SW
INH (R)
INH (F)
S971
S972
S973
S974
OSC
CL
REC "H"
PB "H"
DMT
MOTOR
PL
HOLL
AM IN
REV MODE
Vss
Q339, 340
SWITCHING (REC ON)
Q314, 315
MOTOR DRIVE
M MOTOR
Q316, 317
PLUNGER DRIVE
D971
PLUNGER
DN6851ALB
IC971
HALL IC
4.9V +B
S300
4.9V +B
AM. MT
F LED
REC LED
R LED
REC
FWD
REV
VDD
4.9V +B
(W305)
POWER CONT
AF MUTE
F PLAY
REC "H"
D0
D1
D2
Q322, 323
MUTING CONT.
D313
D314
D308
D306
Q824
LED DRIVE
Q825
LED DRIVE
D803 (REC PAUSE)
D813 (◄R.PLAY)
D804 (►F.PLAY)
+B 15V
S81250HGY
IC312
REGULATOR
Q333, D316
REGU-LATOR
+B 4.9V
T300
F1
D318~321
RECT
S644
AC
DC
AC 120V (60Hz)
BATT 6V (BACK-UP)
BATT 15V (MAIN)
BA3920
IC311
POWER SUPPLY
OUTPUT
Q332
STABI-LIZER
+B 14.8V
+B (CD, 7.2V)
+B (CD, 4.8V)
+B (TUNER)
+B 4.9V
RESET SIGNAL
D840 (POWER)
AUX IN
INPUT (CD SIGNAL)
Q110
MUTING
BA15218NDX
IC301
PLAY EQ AMP
Q335, 338
POWER SUPPLY (PLAY ON)
R/P HEAD
NF
Q102
MUTING
BA7755
IC303
R/P SELECT
9.3V +B
BA15218NDX
IC302
REC AMP
Q311, 312
POWER SUPPLY (REC ON)
R109, C107
REC EQ
NF
Q209, 302, D101, 102
AGC CIRCUIT
93V +B
L301
Q306, 307
BIAS OSC
Q310
BIAS CONT-ROL
ERASE HEAD
Q303, 304
SWITCHING (BEAT PROOF)
Q304
Q303
Q305
SWITCHING
INP
INPU
(TA


Q301
MIC AMP
MIX, MIC
MN4066B
IC308
INPUT SELECTOR
(AUX/CD)
+B
4.9V
Q106
TONE AMP
VR101
(TONE)
VR862
(VOLUME)
Q113
MUTING
AN7134-A
IC310
POWER AMP
+B
15V
Rch
Rch
HEADPHONES
PM DYNAMIC
SPEAKER
12cm, 27Ω
MN4066B
IC307
INPUT SELECTOR
(TAPE/TUNER)
+B
4.9V
Notes :
: FM SIGNAL LINE
: LW/MW SIGNAL LINE
: FM/LW/MW Vcap CONTROL LINE
: FM OSC SIGNAL LINE
: LW/MW OSC SIGNAL LINE
: PLAYBACK SIGNAL LINE
: CD SIGNAL LINE
: MAIN SIGNAL LINE
: RECORDING SIGNAL LINE
: MIC SIGNAL LINE

■ MEASUREMENTS AND ADJUSTMENTS

<TUNER SECTION>

●ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

- ●Set power source voltage to 15 V DC.
- ●Set power switch to ON.
- ●Set function switch to TUNER/MW or LW.
- ●Set volume control to center.
- ●Set tone control to center.
- ●Output of signal generator should be no higher than necessary to obtain an output reading.

●MW-RF ALIGNMENT

(The parts other than the ones listed below are aligned at the factory before they are supplied. Therefore, alignment of those parts is unnecessary when used for replacement.)

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig. 2.)	REMARKS
CONNECTIONS	FREQUENCY				
Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	594 kHz	Tune to signal	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 1 and then connect the lead wires of the plug to the measuring instrument.)	(*1) L5-1 (MW ANT Coil)	Adjust for maximum output. Adjust L5-1 by moving coil along the ferrite core.
〃	1,503 kHz	〃	〃	CT1 (MW ANT Trimmer)	Adjust for maximum output.
(*1) Fix antenna coil with wax after completing alignment.					

●LW-RF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig. 2.)	REMARKS
CONNECTIONS	FREQUENCY				
Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	162 kHz	Tune to signal	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 1 and then connect the lead wires of the plug to the measuring instrument.)	(*1) L5-2 (LW ANT Coil)	Adjust for maximum output. Adjust L5-2 by moving coil along the ferrite core.
〃	270 kHz	〃	〃	CT2 (LW ANT Trimmer)	Adjust for maximum output.
(*1) Fix antenna coil with wax after completing alignment.					

<CASSETTE DECK SECTION>

●ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

- ●Set power source voltage to 15 V DC.
- ●Set power switch to ON.
- ●Set function switch to TAPE.
- ●Set volume control to center.
- ●Set tone control to center.
- ●Output of signal generator should be no higher than necessary to obtain an output reading.

●HEAD AZIMUTH ALIGNMENT

TEST TAPE	INDICATOR ELECTRONIC VOLTMETER or OSCILLOSCOPE	ADJUSTMENT	SPECIFICATION	REMARKS
QZZCFM (8 kHz, −20 dB)	Headphones Jack (32Ω) (Fabricate the plug shown in Fig. 1 and then connect the lead wires of the plug to the measuring instrument.)	Azimuth Screw (Refer to Fig. 3.)	maximum output.	1. Playback mode. 2. Adjust for maximum output.

•RECORD BIAS ALIGNMENT

TEST TAPE	INDICATOR ELECTRONIC VOLTMETER or OSCILLOSCOPE	ADJUSTMENT	SPECIFICATION	REMARKS
Use Normal tape	TP1...(+) TP2...(−) (Refer to Fig. 5)	——	Normal...9±1 mV	•Record mode

•TAPE SPEED ADJUSTMENT

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
QZZCWAT (3 kHz)	Headphones Jack (32Ω) (Fabricate the plug shown in Fig. 1 and then connect the lead wires of the plug to the measuring instrument.)	Motor VR (Shown in Fig. 4.)	3000±90 Hz	1. Playback mode. 2. Adjust motor VR, for 3000±90 Hz reading on frequency counter.

•ALIGNMENT POINT

Please refer to Circuit Board and Wiring Connection Diagram for test point locations.

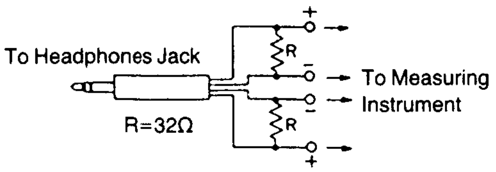

To Headphones Jack
R=32Ω
R
R
+
−
−
+
To Measuring Instrument

Fig. 1

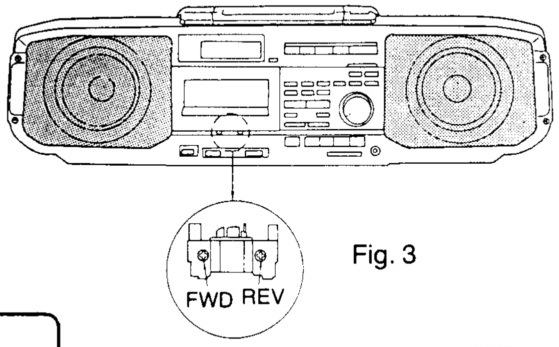


Fig. 3

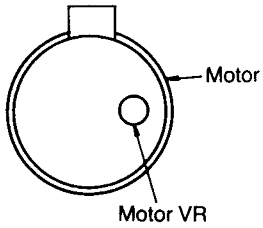

Motor
Motor VR

Fig. 4

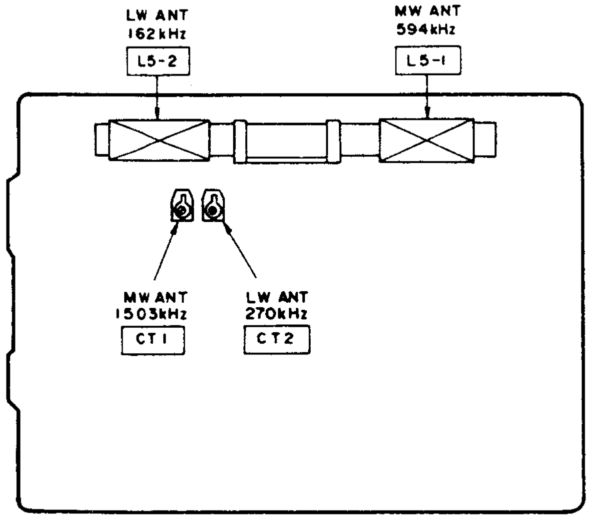
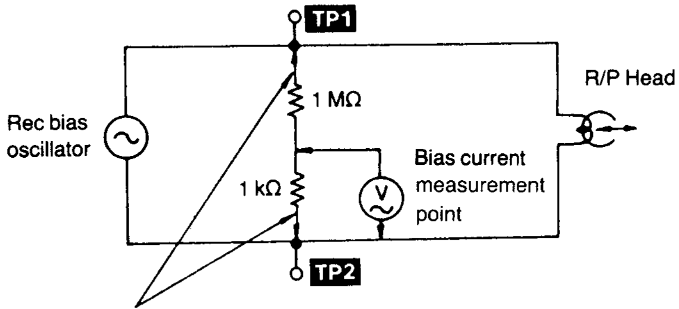

LW ANT
162kHz
L5-2
MW ANT
594kHz
L5-1
MW ANT
1503kHz
CT1
LW ANT
270kHz
CT2

Fig. 2


TP1
R/P Head
1 MΩ
Rec bias oscillator
Bias current measurement point
1 kΩ
V
TP2

Keep these cords short. (Line capacitance: 3 pF of less)

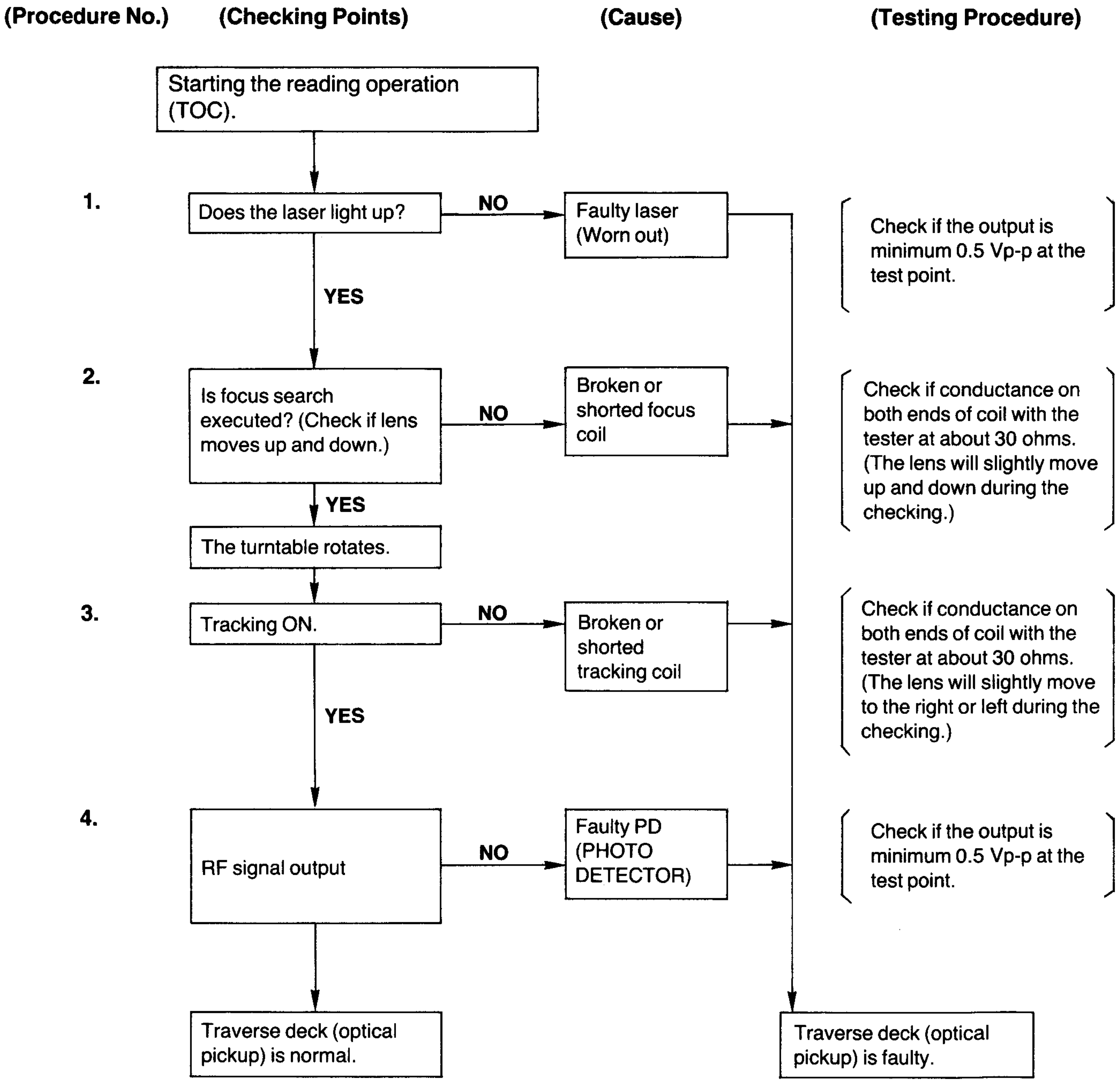
- •In order not to influence the bias oscillation, divide the voltage with 1 MΩ and 1 kΩ resistors, and measure the voltage across the 1 kΩ resistor.

Fig. 5

<CD SECTION>

■ CHECKING THE OPERATION PROBLEMS ON THE TRAVERSE DECK (OPTICAL PICKUP)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it. Replace the traverse deck only after the problem is identified.


(Procedure No.)
(Checking Points)
(Cause)
(Testing Procedure)
Starting the reading operation (TOC).
1.
Does the laser light up?
NO
Faulty laser (Worn out)
YES
2.
Is focus search executed? (Check if lens moves up and down.)
NO
Broken or shorted focus coil
YES
The turntable rotates.
3.
Tracking ON.
NO
Broken or shorted tracking coil
YES
4.
RF signal output
NO
Faulty PD (PHOTO DETECTOR)
Traverse deck (optical pickup) is normal.
Traverse deck (optical pickup) is faulty.

1. Check if the output is minimum 0.5 Vp-p at the test point.

2. Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move up and down during the checking.)

3. Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move to the right or left during the checking.)

4. Check if the output is minimum 0.5 Vp-p at the test point.

※Replace traverse deck.

- Check electrical circuit.
- CD is not adjusted properly. Adjust CD again.
  - (1) Mechanical adjustment.
  - (2) Focus balance adjustment (PD balance)
  - (3) Focus gain adjustment.
  - (4) Tracking gain adjustment.
  - (5) Focus offset adjustment.
  - (6) Tracking offset adjustment.
  - (7) Tracking balance adjustment.

  } Refer to pp.48~51
- Check for flaws on disc or if it is warped or not centered.

※Checking Operations of Replaced Traverse Deck (New Traverse Deck)

a) Check the operations described below on the traverse deck after replacing it.

∗Checking Skip Search
1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

∗Checking Manual Search
1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

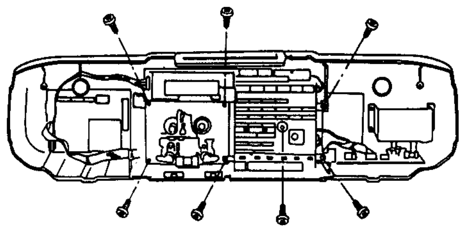
∗Checking Using Defect Disc.
1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

b) If the operations are normal, CD adjustment are not required when the traverse deck is replaced.

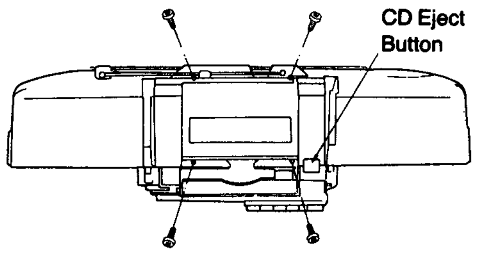
Note: CD adjustments are required in the cases below. (Mechanical adjustments are not necessary.) (See item 2-7 on pp. 48~51.)
- If audio is not played back continuously or noises occur after step (a) is excuted.
- If the adjustment VRs (VR701~VR706) were rotated before the traverse deck was replaced.
- If the ICs in the servo circuit or adjustment VRs were replaced.

Caution:
- **It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.**

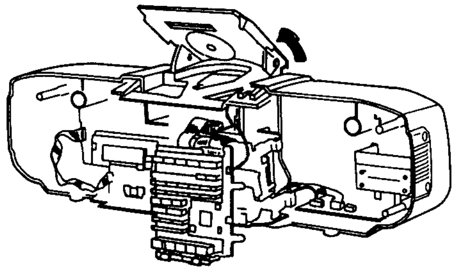
1. Remove the front cabinet (See Ref. No. 2 in disassembly instructions).



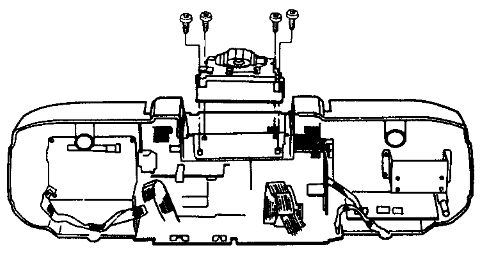
2. Remove 7 screws and then remove the switch P.C.B., mechanism and chassis.


CD Eject
Button

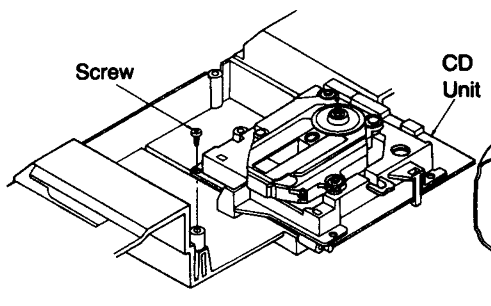
3. Press the CD eject button and then open the disc cover.
4. Remove 4 screws.



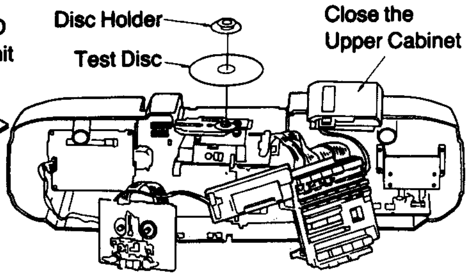
5. Remove the upper cabinet in the direction of arrow.



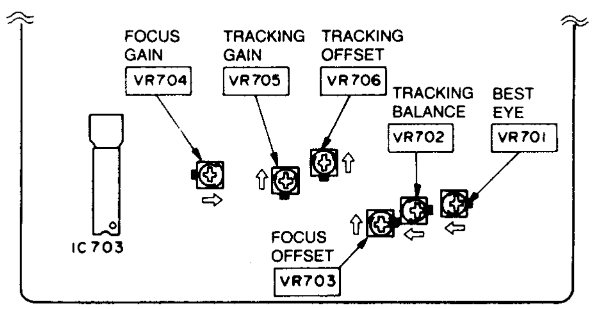
6. Remove 4 screws and remove the CD unit.


Screw
CD
Unit

7. Assemble the CD unit.


Disc Holder
Test Disc
Close the
Upper Cabinet

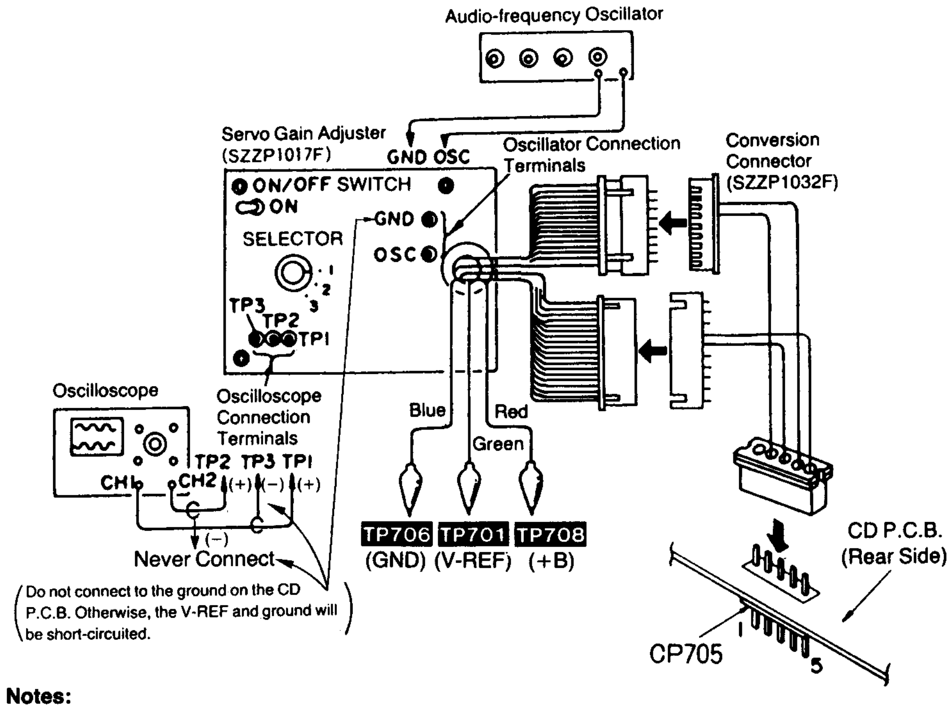
•TEMPORARY SETTING OF EACH VR


FOCUS
GAIN
VR704
TRACKING
GAIN
VR705
TRACKING
OFFSET
VR706
TRACKING
BALANCE
VR702
BEST
EYE
VR701
FOCUS
OFFSET
VR703
IC703

Temporary VR setting if any of the trimmer VRs are replaced or require readjustment, temporarily set them to the following positions.

•CONNECTING THE SERVO GAIN ADJUSTER

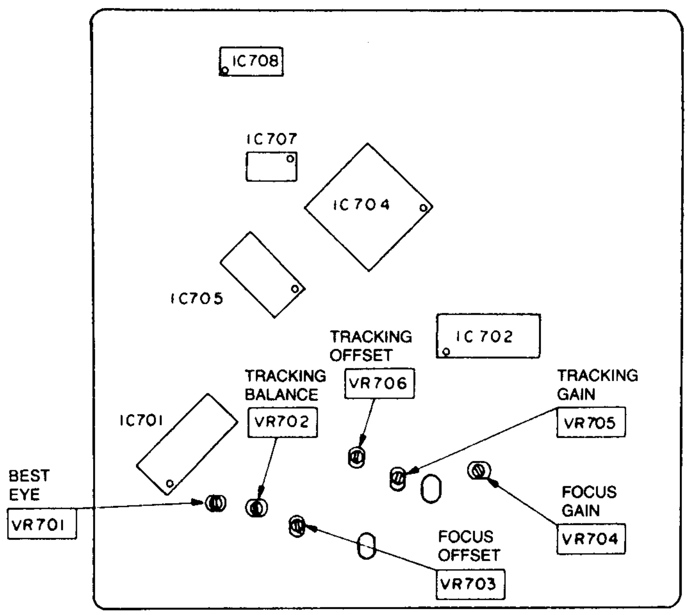
(Tracking gain, focus gain and tracking balance adjustment)


Audio-frequency Oscillator
Servo Gain Adjuster
(SZZP1017F)
GND
OSC
Oscillator Connection
Terminals
Conversion
Connector
(SZZP1032F)
ON/OFF SWITCH
ON
SELECTOR
-GND
OSC
1
2
3
TP3
TP2
TP1
Oscilloscope
Oscilloscope
Connection
Terminals
TP2 TP3 TP1
CH1
CH2
(+)
(-)
(+)
(-)
Never Connect
Blue
Red
Green
TP706 TP701 TP708
(GND) (V-REF) (+B)
CD P.C.B.
(Rear Side)
CP705
1
5

Do not connect to the ground on the CD P.C.B. Otherwise, the V-REF and ground will be short-circuited.

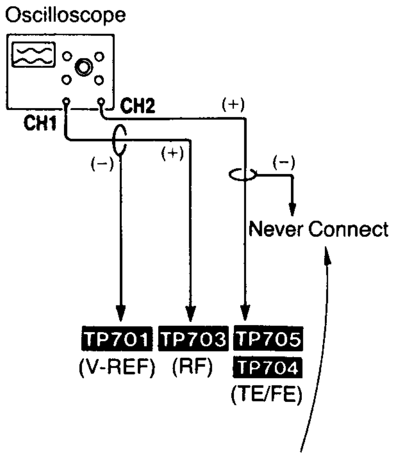
•ALIGNMENT POINT

Please refer to Circuit Board and Wiring Connection Diagram for test point locations.


IC708
IC707
IC704
IC705
TRACKING
OFFSET
IC702
TRACKING
BALANCE
VR706
VR702
TRACKING
GAIN
VR705
IC701
BEST
EYE
VR701
FOCUS
GAIN
VR704
FOCUS
OFFSET
VR703

•CONNECTING THE OSCILLOSCOPE

(Mechanical adjustment and adjustment of the best eye, focus offset, tracking offset and tracking balance)


Oscilloscope
CH1
CH2
(+)
(-)
(+)
(-)
Never Connect
TP701 TP703 TP705
TP704
(V-REF) (RF) (TE/FE)

Do not connect to the ground on the CD P.C.B. Otherwise, the V-REF and ground will be short-circuited.

Notes:
1. During adjustment, never connect CH-2 probe's GND to any place for it may short V-REF line. (Connect CH-1 probe's GND to specified TP, described in each section.)
2. TP3 and GND terminal on the SZZP1017F and TP4, chassis of SZZP1017F are all same V-Ref potential.

Measuring Instruments and Special Tools
- Servo gain adjuster (SZZP1017F or SZZP1094C)
- Test discs
  1. Playability test disc (SZZP1054C)
  2. Uneven test disc (SZZP1056C)
  3. Black band test disc (SZZP1057C)
- Normal disc
- Dual-beam oscilloscope with bandwidth of 30 MHz or better (with EXT trigger and 1:1 probe).
- Audio frequency (AF) oscillator
- Conversion connector (SZZP1032F)
- 2 mm allen wrench (SZZP1101C)

As to the replacement of the following parts, refer to the specified sections for adjustment.

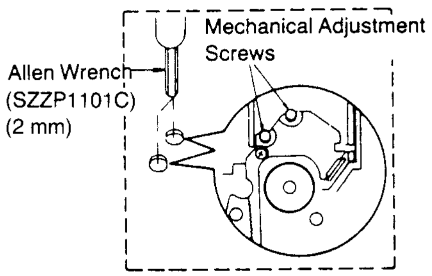
(1) MECHANICAL ADJUSTMENT

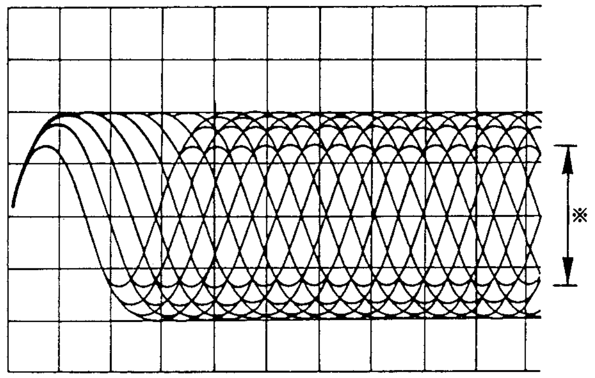
- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability if the traverse deck has not been replaced.

1. Connect the oscilloscope's CH. 1 probe across **TP703** (+) and **TP701** (–) on the Servo P.C.B.

   Oscilloscope setting:

   VOLT .... 200 mV
   SWEEP .... 0.5 µsec
   Input coupling .... AC
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1056C).
3. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench (SZZP1101C) until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.
4. After completing the adjustment, lock the **mechanical adjustments** with lock paint (RZZOL01).





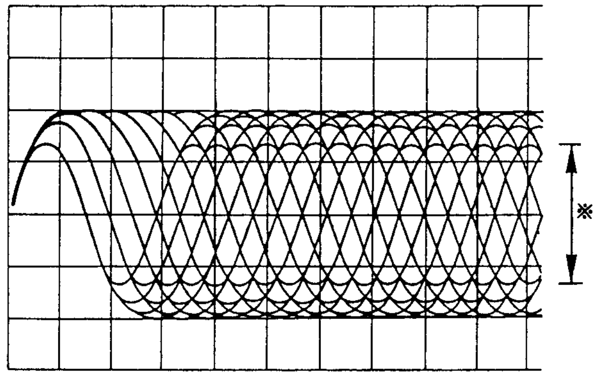
※Most stretched eye pattern.

(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TP703** (+) and **TP701** (–) on the Servo P.C.B.

   Oscilloscope setting:

   VOLT .... 100 mV
   SWEEP .... 0.5 µsec
   Input coupling .... AC
2. Switch the player power **ON**, and play the 1 kHz (track 1) on the test disc (SZZP1054C).
3. Adjust **VR701** until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.



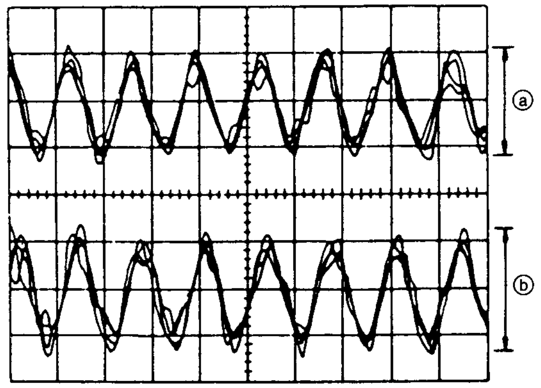
※Most stretched eye pattern.

(3) FOCUS GAIN ADJUSTMENT

1. Connect the servo gain adjuster to the player (see page **48**).
2. Set the servo gain adjuster's gain switch to position "3" and the ON/OFF switch to ON.
3. Set up the AF oscillator output for **1 kHz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
4. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively. CH. 1 probe (–) to TP3 terminal.

   Oscilloscope setting:

   VOLT .... 50 mV (both channels)
   SWEEP .... 1 msec.
   Input coupling .... AC
5. Play the test disc (SZZP1054C).
6. Set the servo gain adjuster's gain switch to position "3", and you will see a 1 kHz signal on the oscilloscope. Adjust **VR704** until the signal amplitudes on both channels become identical to each other.
7. Set the gain switch back to position **"2"**.



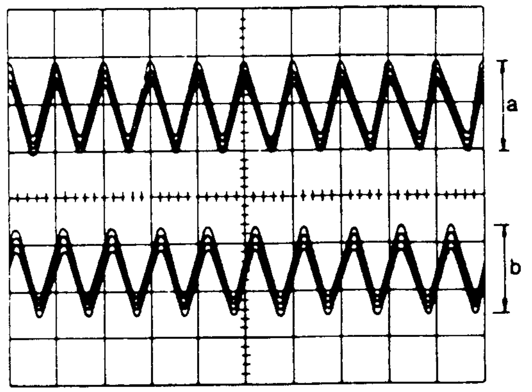
※Adjust VR704 until ⓐ equals ⓑ.

(4) TRACKING GAIN ADJUSTMENT

1. Set up the AF oscillator output for **1 kHz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
2. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively

   Oscilloscope setting:

   VOLT .... 50 mV (both channels)
   SWEEP .... 1 msec.
   Input coupling .... AC
3. Switch the player power **ON**, and play the test disc (SZZP1054C).
4. Set the servo gain adjuster's gain switch to position **"1"**, and you will see a 1 kHz signal on the oscilloscope. Adjust **VR705** until the signal amplitudes on both channels become identical to each other.
5. Set the gain switch back to position **"2"**.



*Adjust **VR705** until a equals b.

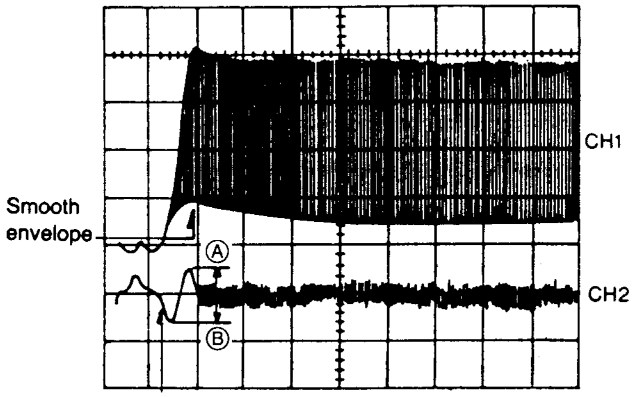
(5) FOCUS OFFSET ADJUSTMENT

Note: Make sure that the servo gain adjuster's gain switch is set to position **"2"**.

1. Connect the oscilloscope's CH. 1 probe across **TP703** (+) and **TP701** (–) on the Servo P.C.B. and CH. 2 probe (+) to **TP705**.

   Oscilloscope setting:

   VOLT .... 200 mV (CH. 1)
   1 V (CH. 2)
   SWEEP .... 0.5 msec.
   Input coupling .... AC (both CH. 1 and 2)
   Trigger mode .... NORM (trigger CH. 1)
2. Switch the player power **ON**, and play the **5** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR703** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH.2 is minimized, i.e. when amplitude Ⓐ equals amplitude Ⓑ.



Minimize the amplitude on make Ⓐ=Ⓑ.

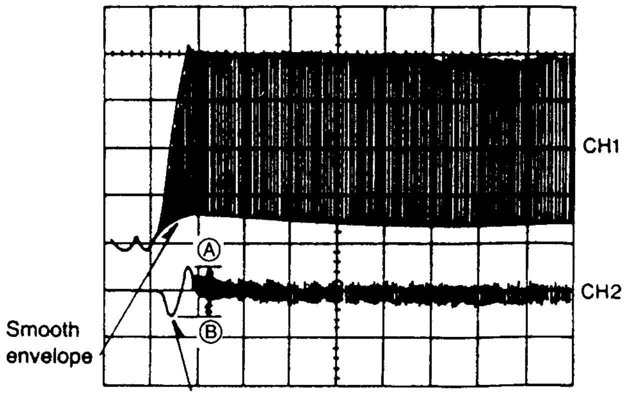
(6) TRACKING OF OFFSET ADJUSTMENT

Note: Make sure that the servo gain adjuster's gain switch is set to position **"2"**.

1. Connect the oscilloscope's CH. 1 probe across **TP703** (+) and **TP701** (–) on the Servo P.C.B. and CH. 2 probe (+) to **TP704**.

   Oscilloscope setting:

   VOLT .... 200 mV (CH. 1)
   1 V (CH. 2)
   SWEEP .... 0.5 msec.
   Input coupling .... AC (both CH. 1 and 2)
   Trigger mode .... NORM (trigger CH. 1.)
2. Switch the player power **ON**, and play rack **5** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR706** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude Ⓐ equals amplitude Ⓑ.



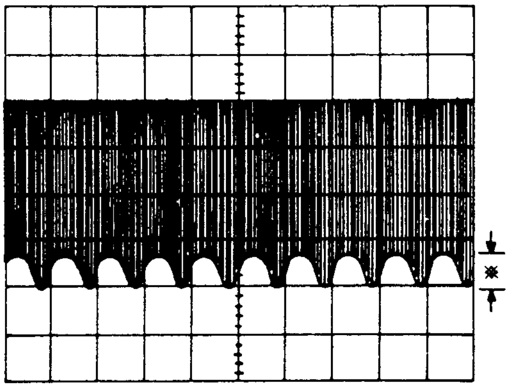
Minimize the amplitude on make Ⓐ=Ⓑ.

(7) TRACKING BALANCE ADJUSTMENT

1. Make sure that servo gain adjuster's gain switch is set to position "2".
2. Set up the AF oscillator output for **1 kHz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
3. Connect oscilloscope's CH. 1 probe across **TP703** (+) and **TP701** (−) on the Servo P.C.B. and CH. 2 probe (+) to the OSC terminal on the servo gain adjuster.

   Oscilloscope setting:

   VOFLT .... 200 mV (CH. 1)
   SWEEP .... 1 msec.
   Input coupling .... AC (both CH. 1 and 2)
   Trigger mode .... NORM (trigger CH. 2)
4. Switch the player power **ON**, and play the test disc (SZZP1054C).
5. Adjust the **VR702** so that the section of the output of the waveform marked with ※ is balanced.
6. Disconnect the servo gain adjuster's leads from the player.



This section of the waveform must be balanced.

(8) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

·Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

·Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

·Checking Using Defect Disc

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

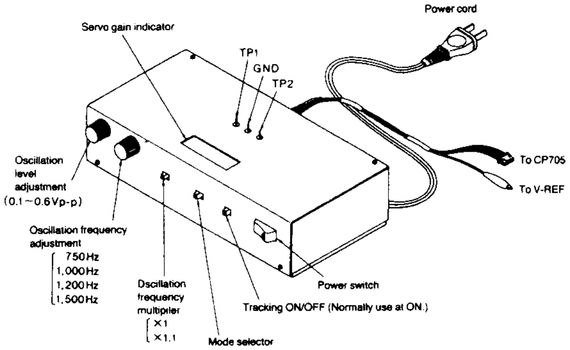
■ NEW SERVO GAIN ADJUSTER (Servo Amp. Adjusting Fixture)

The following introduces the improved version of the current servo gain adjuster (SZZP1017F):

Part number: SZZP1094C

Features:

(1) Contains all oscillation frequencies and output adjustments needed for focus servo gain, tracking servo gain, and tracking balance adjustment (requires no external oscillator).
(2) Panel indicators indicate the best points of focus and tracking servo gains (no oscilloscope needed).
(3) Internal power supply eliminates the need for power supply from the CD player.


Power cord
Servo gain indicator
TP1
GND
TP2
To CP705
To V-REF
Oscillation level adjustment (0.1~0.6Vp-p)
Oscillation frequency adjustment
750Hz
1,000Hz
1,200Hz
1,500Hz
Oscillation frequency multipiler
×1
×1.1
Mode selector
Tracking ON/OFF (Normally use at ON.)
Power switch

■ FUNCTION OF IC TERMINALS

•IC306 (TC9312AN-082): Mechanism control

Terminal No.	Terminal Symbol	Terminal Name	Function
1	Vss	Ground Terminal	For ground connection.
2	OSC	External Oscillator C/R Terminal	This terminal enables the oscillation of the standard frequency. The standard frequency (C337 8200p, R342 33k) is 64 kHz.
3	CL	Resetting System Input Terminal	At power off, the IC is reset when a "LOW" level signal is input to this terminal.
4	NC	——	——
5	INH (F)	Input Terminal for Erroneous Erasure Prevention	Either an ON or OFF signal is input to this terminal from S974 to enable or inhibit erasure on the FWD side. At a "HI" level .... FWD sound recording is not possible. (The circuit for erroneous erasure prevention is activated.) At a "LOW" level .... recording is possible.
6	INH (R)	Input Terminal for Erroneous Erasure Prevention	Either an ON or OFF signal is input to this terminal from S973 to enable or inhibit erasure on the REV side. At a "HI" level .... REV sound recording is not possible. (The circuit for erroneous erasure prevention is activated.) At a "LOW" level .... recording is possible.
7	HALF SW	Input Terminal for Cassette Tape Insertion Detection	When a cassette tape has been inserted in Deck, S972 becomes active and a "LOW" level signal is input to this terminal to set the deck on standby.
8	MODE SW	Input Terminal for Detection of Operation on Deck	This is the detection terminal for operation on Deck. A "LOW" level signal is input to this terminal when S971 is turned on during PLAY, FF or RWD operation on Deck.
9	REC	Input Terminals for Tape Operation	When a tape operation button is pressed, a "LOW" level signal is input.
10	FWD		
11	REV		
12	REV MODE	Reverse Mode Input Terminal	The reverse mode switching signal is input to this terminal from S300. At a "LOW" level .... " ⇄ " At "½ VDD" level .... " ⊂ " At "VDD" level ...... " ⟲ "
13	HOLE	Auto-Stop Detection Input Terminal	Tape rotation is detected by IC971 which outputs a signal into this terminal. No signal input ...... The unit is set to the STOP or AUTO REVERSE mode. Signal input (pulse) .. tape runs.
14	REMOTE	CD sync. input Terminal	CD sync. signal is input to this terminal from IC802.
15	AM IN	Muting Input Signal	Mute signal is input to this terminal.
16	ATS IN	Input Terminals for Auto Tape Selection	——
17	NC	——	——
18	REC LED	Rec LED Output Terminal	This terminal outputs a "HI" level when unit is in recording operation. The LED for D803 light up.
19	PB H	PB Output Terminal	This terminal outputs a "HI" level when unit is in playback operation.
20	REC H	REC Output Terminal	This terminal outputs a "HI" level when unit is in recording operation.
21	AM MT	Muting Output Terminal	This terminal outputs a "HI" level when unit is in muting operation.
22	ATS OUT	Auto Tape Select Output Terminal	——

Terminal No.	Terminal Symbol	Terminal Name	Function
23	DMT	Muting Output Terminal	This terminal outputs a "HI" level when unit is in muting operation.
24	R LED	Reverse LED Output Terminal	This terminal outputs a "HI" level signal when the unit is in reverse operation. The LED for D813 lights up.
25	F LED	Forward LED Output Terminal	This terminal outputs a "HI" level signal when the unit is in forward operation. The LED for D804 lights up.
26	MOTOR	Motor Control Signal Output Terminal	This terminal outputs the ON/OFF motor signal to Q315. At a "HI" level . . . . the motor control system is activated. At a "LOW" level . . . . the motor control system is deactivated.
27	PL	ON/OFF Plunger Control Output Terminal	This terminal outputs the ON/OFF plunger control signal to Q317. At a "HI" level . . . . the plunger operates. At a "LOW" level . . . . the plunger does not operate. After this terminal outputs a "HI" level signal and sets Q317 and 316 to ON, the plunger starts operating.
28	Vpp	Power Connection Terminal	To be connected to a +5.5 V power supply.

•IC701 (AN8373SE2): Servo amp.

Pin No.	MarK	I/O Division	Function
1	AMP1	I	RF signal input (×30 amp.)
2	PDAD	I	Photo detector current input (A2)
3	PDA	I	Photo detector current input (A1)
4	PDBD	I	Photo detector current input (A4)
5	PDB	I	Photo detector current input (A3)
6	LPD	I	Non-inverting laser power input
7	LD	O	Laser power auto control output
8	FBL1	I	PD balance adjustment
9	FBL2	I	
10	TBL1	I	Tracking balance adjustment
11	TBL2	I	
12	FOOFS	I	Focus offset adjustment
13	IVA	O	Current/voltage conversion output (A)
14	IVB	O	Current/voltage conversion output (B)
15	FE	O	Focus gain adjustment output
16	FPI	I	Focus error signal input
17	TPI	I	Tracking error signal input
18	C. TPL	I	Tracking error filter capacitor input
19	C. TPH		
20	C. FPL	I	Focus error filter capacitor input
21	C. FPH		

Pin No.	MarK	I/O Division	Function
22	TPO	O	Tracking error signal output
23	FPO	O	Focus error signal output
24	FGC	I	Focus gain up signal input (Not used, connected to GND)
25	TGC	I	Tracking gain up signal input (Not used, connected to GND)
26	GD	I	Focus/tracking gain down signal input (Not used, connected to GND)
27	PTO	O	Position detecting amp. output
28	PTI	I	Position detecting amp. input
29	PBO	O	Position detecting buffer output
30	POT	I	Position detecting buffer input
31	BDO	O	Dropout detection output
32	$\overline{\text{RFDET}}$	O	RF detections signal output
33	SDO	O	Dropout detection pulse output
34	C. SBDO	I	Dropout detecting capacitor input
35	ARF	O	RF signal output
36	C AGC	I	AGC detecting capacitor input
37	VCC	I	Power supply (+5 V input)
38	LDON	I	Laser power control input
39	RF IN	I	RF signal input
40	AMPO	O	RF signal output
41	VREF	O	Reference voltage output
42	GND	I	Ground terminal

•IC702 (AN8374SE2): Servo processor

Pin No.	MarK	I/O Division	Function
1	LSA	I	Phase difference input (A)
2	LSB	I	Phase difference input (B)
3	TEOFS	I	Tracking offset adjustment
4	TE	O	Tracking gain adjustment
5	TEG	I	
6	TE OUT	O	Tracking error signal output
7	TE BPF	I	Tracking error gain detecting filter (Not used, open)
8	FEG	I	Focus gain adjustment
9	FE OUT	O	Focus error signal output
10	CLW	O	Triangular wave oscillator capacitor input
11	VREF	I	Reference voltage input
12	ARF	I	RF signal input
13	CDSL	I	Data slice filter capacitor input
14	FPC	I	Frequency difference signal input
15	GND	I	Ground terminal
16	C. PLL	I	PLL loop filter constant
17	VSS	I	Ground terminal
18	CLK	I	Frequency pull-in clock signal (88.2 kHz) input
19	SRF	O	Sliced and digitized RF signal output
20	PCK	O	Clock output extracted from SRF
21	EFM	O	EFM signal output synchronous with PCK

Pin No.	MarK	I/O Division	Function
22	VDD	I	Power supply (+5 V input)
23	SPCNT	O	Track crossing speed control output (Not used, open)
24	SENSE	O	Selector output (track crossing state)
25	TRV	O	Traverse servo control output
26	$\overline{\text{FLOCK}}$	O	Focus lock signal output
27	KICK	O	Track kick signal output
28	LDON	O	Laser power control output
29	VDET	O	Focus/tracking gain up output (Not used, open)
30	CNT1	I	Control input (FOON: Focus servo ON signal)
31	CNT2	I	Control input (TRON: Tracking servo ON signal)
32	CNT3	I	Control input [KICKF: Kick direction (forward) command]
33	CNT4	I	Control input [KICKR: Kick direction (reverse) command]
34	TRVF	I	Traverse forward command signal
35	TRVR	I	Traverse backward command signal
36	$\overline{\text{RFDET}}$	I	RF detection signal input
37	BDO	I	Dropout detection input
38	VCC	I	Power supply (+5 V input)
39	TVPO	O	Traverse position detecting resistor/capacitor inputs
40	TVPI	O	
41	BROUT	I	Tracking drive control output
42	BRIN	I	Tracking error signal input

•IC703 (AN8377N): BTL drive

Pin No.	MarK	I/O Division	Function
1	PVCC	I	Driver power supply (+8.9 input)
2	VCC	I	Power supply (+8.9 V input)
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output
5	TVDI	I	Traverse error signal input
6	FDI	I	Focus error signal input
7	TDI	I	Tracking error signal input
8	VREF	I	Reference voltage input

Pin No.	MarK	I/O Division	Function
9	TD−	O	Inverting output of tracking driver
10	TD+	O	Non-inverting output of tracking driver
11	FD−	O	Inverting output of focus driver
12	FD+	O	Non-inverting output of focus driver
13	TVD−	O	Inverting output of traverse driver
14	TVD+	O	Non-inverting output of traverse driver
15	$\overline{\text{RESET}}$	O	Reset signal output
16	PC	I	PC input (connect to GND)

•IC704 (MN6625): Digital signal processing

Pin No.	MarK	I/O Division	Function
1	BYTCK	O	Serial data byte clock (Not use, open)
2	LCLK	O	Crystal frame clock (Not use, open)
3	DEMPH	O	De-emphasis ON signal (de-emphasis ON at "H") (Not used, open)
4	SRDATA	O	Serial data output (MSB first)
5	SCK	O	Serial bit clock output
6	LRCK	O	LR discrimination signal output
7	WDCK	O	Serial data output word clock
8	LDG	O	L channel deglitch signal (Not used, open)
9	RDG	O	R channel deglitch signal (Not used, open)
10	IPFLAG	O	Interpolation flag (Interpolation at "H")
11	FLAG	O	Error flag terminal
12	XCK	O	Clock (16.9344 MHz) output (Not used, open)
13	TEST	I	Test mode selection (Not used, connected to +5 V)
14	TX	O	Digital signal output
15	SLEEP	I	Mode selector ("L": normal, "H": SLEEP mode)
16	CSEL	I	Test terminal ("L": normal)
17	X1	I	Clock input (16.9344 MHz)
18	X2	O	Clock output (16.9344 MHz) (Not used, open)
19	VSS	I	GND terminal
20	BLKCK	O	Sub-code block (Q data) clock (75 Hz)
21	$\overline{CLDCK}$	O	Sub-code frame (Q data) clock (7.35 kHz)
22	$\overline{SUBQ}$	O	Sub-code (Q data) output
23	$\overline{RST}$	I	Reset signal input (reset at "L")
24	MLD	I	Command load signal input
25	MCLK	I	Command clock signal input
26	MDATA	I	Command data input
27	DMUTE	I	Muting control
28	$\overline{TRON}$	I	Tracking servo ON signal (tracking servo ON at "L")
29	STAT	O	Processing condition (CRC, CUE, CLVS, TT STOP, FCLV)
30	SUBC	O	Sub-code serial output data (Not used, open)
31	SBCK	I	Clock for sub-code serial output (Not used, open)
32	SMCK	O	Clock output (4.2336 MHz)
33	VDD	I	Power supply (connected to +5 V)
34	MEMP	I	Emphasis signal input
35	FG	I	Spindle motor FG signal input (Not used, open)
36	PC	O	Spindle motor ON signal (ON at "L")
37	EC	O	Spindle motor drive signal
38	RESY	O	Resynchronizing signal (Not used, open)
39	DO	I	Drop-out signal (Drop-out at "H")
40	SRF	I	EFM signal input (DSL)
41	EFM	I	EFM signal input (PLL)
42	PCK	I	PLL extract clock input (4.3218 MHz)
43	FPC	O	PLL frequency comparison signal
44 ≀ 51	D7 ≀ D0	I/O	16 K RAM data input/output
52	RAM/OE	O	16 K RAM OE signal
53	RAM/WE	O	16 K RAM WE signal
54 ≀ 64	RAM/A0 ≀ RAM/A10	O	16 K RAM address signal (RAMA0: LSB, RAMA10: MSB)

•IC705 (LC3517BMLTP): De Interleave

Pin No.	Mark	I/O Division	Function
1~8	A7~A0	I	Address input
9~11	D0~D2	I/O	Data in•out
12	VSS	——	Ground Connection
13~17	D3~D7	I/O	Data in•out
18	CS	——	Ground connection
19	A10	I	Address input
20	OE	I	Output-enable input
21	WE	I	Read-wright control input
22	A9	I	Address input
23	A8		
24	VDD	I	Power supply

•IC707 (SM5807ESE2): Digital Filter

Pin No.	Mark	I/O Division	Function
1	XT	I	Clock input
2	XT	——	——
3	CKSL	——	——
4	CKO	——	——
5	LRCL	I	Clock (44.1 kHz)
6	DIN	I	Serial data input
7	BCKIN	I	Serial input, Bit clock input
8	Vss	——	Ground
9	SCSL	I	SCSL=H: System clock=192 fs SCSL=L: System clock=196 fs
10	DGR	O	Degrich signal (Rch) (176.4 kHz)
11	DGL	O	Degrich signal (Lch) (176.4 kHz)
12	DOUT	O	Serial data output
13	WDCK	O	Output control clock (352.8 kHz)
14	LRCO	O	Output control clock (176.4 kHz)
15	BCKO	O	Serial output, Bit clock (8.467 MHz or 8.6436 MHz)
16	Vss	——	+B

•IC708 (UPD6376GSE2): D/A Converter

Pin No.	Mark	I/O Division	Function
1	NC	——	——
2	D. GND	——	Ground (DC)
3	D. VDD	I	+B (DC)
4	D. VDD		
5	A. GND	——	Ground (AC)
6	R. OUT	O	AF signal output (Rch)
7	A. VDD	I	+B (AC)
8	A. VDD		
9	R. REF	I	Reference voltage input (Rch)
10	L. REF	I	Reference voltage input (Lch)
11	L. OUT	O	AF signal output (Lch)
12	A. GND	——	Ground (AC)
13	LRCK	I	Clock input
14	LRSEL	I	Ground
15	SI	I	Serial data input
16	CLK	I	Bit clock input

•IC800 (M50932-179FP): System Control

Pin No.	Mark	I/O Division	Function
1~9	SEG8~SEG0	O	LCD segment signal output
10	COM3	——	——
11~13	COM2~COM0	O	LCD common signal output
14~16	VL1~VL3	I	LCD drive power supply
17	Vcc	I	+B
18	CNTR	I/O	Counter signal
19	P37	I/O	Power control
20	P36	I/O	Clock
21	P35	——	——
22	P34	I/O	Sub-code (Q data)
23	P33	I/O	Auto mute
24	P32	I/O	Remote control
25	P31	I/O	Clock
26	P30		
27	BLKCK	I	Sub-code (Q data) clock input
28	NC	——	——
29	RESET	I	Reset signal input (Reset at Low)
30	XIN	I	Clock signal input
31	XOUT	O	Clock signal output
32	Vss	——	Ground
33	P27	O	PLL control
34	P26		
35	P25		
36	P24	O	Input select
37	P23		
38	P22	——	——
39	P21	O	Power control output
40	P20	I	Status signal input
41	P17	O	AF mute signal output
42	P16	O	Traverse "Reverse" command signal output
43	P15	O	Traverse "Forward" command signal output
44	P14	O	Optical servo IC control signal [Kick direction (Reverse) control]
45	P13	O	Optical servo IC control signal [Kick direction (forward) control]
46	P12	O	Optical servo IC control signal (Tracking servo)
47	P11	O	Optical servo IC control signal (Focus servo)
48	P10	I	Focus clock signal input
49	P07	I	Selector input
50	P06	O	Data road signal
51~56	P05~P00	I	Key matrix
57~64	P47~P40	I	Key matrix
65~80	SEG23~SEG9	O	LCD drive signal output

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by △ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.) Parts without these indications can be used for all areas.
* Warning: This product uses a laserdiode. Refer to caution statements on page 2.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	RVITA7358FT	I. C, FM FRONT END	
IC2	TA8132F	I. C, FM/AM IF AMP	
IC3	LM7001	I. C, PLL	
IC301, 302	BA15218NDX	I. C, PLAY/REC EQ AMP	
IC303	BA7755	I. C, R/P SELECT	
IC306	TC9312AN-082	I. C, MECHANISM CONTROL	
IC307, 308	MN4066B	I. C, INPUT SELECT	
IC310	AN7134-A	I. C, POWER AMP	
IC311	BA3920	I. C, POWER SUPPLY	
IC312	S81250HGT	I. C, REGULATOR	
IC701	AN8373SE2	I. C, CD SERVO SYSTEM	
IC702	AN8374SE2	I. C, CD SERVO SYSTEM	
IC703	AN8377N	I. C, MOTOR DRIVE	
IC704	MN6625	I. C, SIGNAL PROCESS	
IC705	LC3517BMLTP	I. C, DE INTERLEAVE	
IC706	TA8410P	I. C, MOTOR DRIVE	
IC707	SM5807ESE2	I. C, DIGITAL FILTER	
IC708	UPD6376GSE2	I. C, D/A CONV/BUFFER AMP	
IC800	M50932-179FP	I. C, SYSTEM CONTROL	
IC801	S8054HN-T	I. C, RESET SIGNAL GENERATOR	
IC802	M50253P	I. C, LED DRIVE	
IC803	BA6218	I. C, MOTOR DRIVE	
IC971	DN6851ALB	I. C, HALL	
		TRANSISTOR(S)	
Q1, 2	2SC3313BTA	TRANSISTOR	
Q3	2SC1674LTA	TRANSISTOR	
Q4	2SC3311RTA	TRANSISTOR	
Q5, 6	RVTDTA143XST	TRANSISTOR	
Q7-9	2SC3311RTA	TRANSISTOR	
Q10	2SC3311RTA	TRANSISTOR	
Q11, 12	2SA1309RTA	TRANSISTOR	
Q13, 14	2SC3311RTA	TRANSISTOR	
Q15	RVTDTA143XST	TRANSISTOR	
Q16, 17	2SC3311RTA	TRANSISTOR	
Q18	2SK381CTA	TRANSISTOR	
Q19	RVTDTC114TST	TRANSISTOR	
Q20	RVTDTA143XST	TRANSISTOR	
Q102	2SC3311ARTA	TRANSISTOR	
Q106	2SC3312RTA	TRANSISTOR	
Q109, 110	2SC3311ARTA	TRANSISTOR	
Q113	2SC3311ARTA	TRANSISTOR	
Q202	2SC3311ARTA	TRANSISTOR	
Q206	2SC3312RTA	TRANSISTOR	
Q209, 210	2SC3311ARTA	TRANSISTOR	
Q213	2SC3311ARTA	TRANSISTOR	
Q301	2SC3312RTA	TRANSISTOR	
Q302-304	2SC3311ARTA	TRANSISTOR	
Q305-307	2SD1302STA	TRANSISTOR	
Q310	2SC3311ARTA	TRANSISTOR	
Q311	RVTDTA143XST	TRANSISTOR	
Q312	2SC3311ARTA	TRANSISTOR	
Q314	2SB621RTA	TRANSISTOR	
Q315	RVTDTC143XST	TRANSISTOR	
Q316	2SB621RTA	TRANSISTOR	
Q317	RVTDTC143XST	TRANSISTOR	
Q322	UN4111TA	TRANSISTOR	
Q323	RVTDTC143XST	TRANSISTOR	
Q324-326	UN4111TA	TRANSISTOR	
Q332	2SB1393P	TRANSISTOR	
Q333	2SC3311ARTA	TRANSISTOR	
Q335	RVTDTA143XST	TRANSISTOR	
Q338	2SC3311ARTA	TRANSISTOR	
Q701	2SA1309STA	TRANSISTOR	
Q703	UN4110TA	TRANSISTOR	
Q704, 705	UN4216TA	TRANSISTOR	
Q800-802	RVTDTA114TST	TRANSISTOR	
Q804	RVTDTC114TST	TRANSISTOR	
Q807	RVTDTA114EST	TRANSISTOR	
Q808	RVTDTC114EST	TRANSISTOR	
Q812, 813	RVTDTC114TST	TRANSISTOR	
Q814	RVTDTC114EST	TRANSISTOR	
Q816	RVTDTA114EST	TRANSISTOR	
Q819	2SC3311RTA	TRANSISTOR	
Q820, 821	RVTDTC114TST	TRANSISTOR	
Q822	2SC3311RTA	TRANSISTOR	
Q823	RVTDTC114TST	TRANSISTOR	
Q824	2SC3311ARTA	TRANSISTOR	
Q825	UN421FTA	TRANSISTOR	
		DIODE(S)	
D1, 2	1SV147T4MATU	DIODE	
D3	MA4051MTA	DIODE	
D4	RVDKV1235ZB	DIODE	
D5	MA4130MTA	DIODE	
D6	MA165TA	DIODE	
D8, 9	MA165TA	DIODE	
D10	MA165TA	DIODE	
D101-103	MA165TA	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D201-203	MA165TA	DIODE	
D301	MA165TA	DIODE	
D302	MA4047MTA	DIODE	
D306	MA165TA	DIODE	
D308-315	MA165TA	DIODE	
D316	MA4100MTA	DIODE	
D317	MA723TA	DIODE	
D318-321	RVDP300DLF	DIODE	
D325	MA4068TA	DIODE	(EB)
D330	MA723TA	DIODE	
D707, 708	MA165TA	DIODE	
D803	LN032474PH	L. E. D (D804, D813)	
D814-822	MA165TA	DIODE	
D825-830	MA165TA	DIODE	
D832-839	MA165TA	DIODE	
D840	LN022480PH	L. E. D (D851)	
D841-843	MA165TA	DIODE	
D845-847	MA165TA	DIODE	
D971	RVD1SS133TA	DIODE	
		VARIABLE RESISTOR(S)	
VR101	RRV20F01G54A	V. R, TONE(VR201)	
VR701	EVNDXAA00B14	V. R, BEST EYE	
VR702	EVNDXAA00B24	V. R, TRACKING BALANCE	
VR703	EVNDXAA00B14	V. R, FOCUS OFFSET	
VR704	EVNDXAA00B14	V. R, FOCUS GAIN	
RV705	EVNDXAA00B14	V. R, TRACKING GAIN	
VR706	EVNDXAA00B14	V. R, TRACKING OFFSET	
VR862	EWC07A027B54	V. R, VOLUME(VR863)	
		COMPONENT COMBINATION(S)	
Z1	RXABPWB6AT	COMPONENT COMBINATION	
Z800	A1QH3029H0	COMPONENT COMBINATION	
Z801	RSL5022-L	LCD	
		COIL(S)	
L3	RLQZP4R7KT-Y	COIL	
L4	RL02B001-T	COIL	
L5	RLV6C001-0	COIL	
L7	RL09B18-M	COIL	
L8, 9	RLQZP221KT-Y	COIL	
L12	RL01B001-T	COIL	
L15	RLQZP221KT-Y	COIL	
L17	RLQZP4R7KT-Y	COIL	
L301	RL08C7-T	COIL	
L302, 303	RLQZB470KT-D	COIL	
L304, 305	RLQZR470KT-Y	COIL	(EG)
L804	ELEXT2R2KA9	COIL	
L806-811	ELEXT2R2KA9	COIL	

Ref. No.	Part No.	Part Name & Description	Remarks
		TRANSFORMER(S)	
T1	RLI2B001-T	TRANSFORMER	
T300	RTP1U1E001-C	POWER TRANSFORMER	⚠ (EG)
T300	RTP1U1B001-C	POWER TRANSFORMER	⚠ (EB)
		FILTER(S)	
CF1, 2	RLFFETWLA02D	COIL	
CF3	RLFDFTA01D	COIL	
		OSCILLATOR(S)	
X1	RSXZ456KM01	OSCILLATOR	
X2	RVCF7200NZN	OSCILLATOR	
X701	RSXZ16M9M01T	OSCILLATOR	
X800	RVCQ32NXF	OSCILLATOR	
X801	RVBCSA4R0MGT	OSCILLATOR	
		FUSE(S)	
F1	XBA2C31TB0U	FUSE	⚠
		SWITCH(ES)	
S300	ESD1521305	SW, REV MODE	
S302	ESD1521305	SW, FM MODE/B. P.	
S644	RJJ1SE01-H	SW, AC/DC SELECT	⚠
S701	SSHD5-E	SW, REST	
S800	EVQ21405R	SW, REC PAUSE	
S801	EVQ21405R	SW, FWD PLAYBACK	
S802	EVQ21405R	SW, REV PLAYBACK	
S803	EVQ21405R	SW, FF/TPS	
S804	EVQ21405R	SW, REW/TPS	
S805	EVQ21405R	SW, STOP	
S809	EVQ21405R	SW, TUNER/BAND	
S811	EVQ21405R	SW, CD	
S812	EVQ21405R	SW, CD"REPEAT"	
S813	EVQ21405R	SW, CD/TUNER"1"	
S814	EVQ21405R	SW, CD/TUNER"7"	
S815	EVQ21405R	SW, AUX	
S817	EVQ21405R	SW, CD/TUNER"2"	
S818	EVQ21405R	SW, CD/TUNER"8"	
S819	EVQ21405R	SW, TAPE	
S821	EVQ21405R	SW, TIME SET/TUNING"CANCEL"	
S822	EVQ21405R	SW, CD/TUNER"3"	
S823	EVQ21405R	SW, CD/TUNER"9"	
S824	EVQ21405R	SW, POWER	
S826	EVQ21405R	SW, CD OPERATION	
S827	EVQ21405R	SW, CD OPERATION	
S828	EVQ21405R	SW, CD/TUNER"4"	

Ref. No.	Part No.	Part Name & Description	Remarks
S829	EVQ21405R	SW, CD/TUNER"10"	
S832	EVQ21405R	SW, CD/OPERATION	
S834	EVQ21405R	SW, CD/TUNER"5"	
S835	EVQ21405R	SW, CD/TUNER"11"	
S836	EVQ21405R	SW, CD/TUNE"PROGRAM"	
S837	EVQ21405R	SW, TUNING"-"	
S838	EVQ21405R	SW, CD/TUNER"6"	
S839	EVQ21405R	SW, CD/TUNER"12"	
S840	EVQ21405R	SW, CD/TUNER"+10"	
S841	EVQ21405R	SW, TUNING	
S842	EVQ21405R	SW, CD OPERATION	
S900	RSH1A67ZA-U	SW, OPEN/CLOSE	
S971	RSH1A89ZA-U	SW, MODE DETECT	
S972	RSH1A90ZA-U	SW, CASSETTE TAPE DETECT	
S973	RSH1A90ZA-U	SW, REC TAB DETECT	
S974	RSH1A90ZA-U	SW, REC TAB DETECT	
S1001	RSH1A67ZA-U	SW, LASER ON/OFF	
		CONNECTOR	
CP1	RJP8G18ZA	CONNECTOR	
CP303	RJP2G18ZA	CONNECTOR	
CP310	RJP5G18ZA	CONNECTOR	
CP701-703	RJP2G18ZA	CONNECTOR	
CP704	RJP2G17ZA	CONNECTOR	
CP705	RJP5G35ZA	CONNECTOR	
CP803	RJP2G9YA	CONNECTOR	
CP823	RJP2G18ZA	CONNECTOR	
CS2	RJS1A5207	SOCKET	
CS701	RJS6T7ZA	SOCKET	
CS702	RJS12T7YA	SOCKET	
CS703	RJS10T7YA	SOCKET	
CS705	RJS16Q11ZA	SOCKET	
CS804.805	RJS12T7ZA	SOCKET	
CS820	RJS1A5207	SOCKET	
CS821	RJP4G4YA	CONNECTOR	
CS822	RJS1A1703	CONNECTOR (3P)	
CS850	RJS9T7ZA	SOCKET	
		TRIMMER	
CT1	RCV10AF1T-S	TRIMMER CAPACITOR	
CT2	ECRLA020E53R	TRIMMER CAPACITOR	
		I.C PROTECTOR	
IP301	RAHICPN10TA	I.C PROTECTOR	
IP302	RAHICPN5TA	I.C PROTECTOR	(EB)
IP303	RAHICPN5TA	I.C PROTECTOR	(EB)
		JACK	
J301	RJJD7S2YA-C	JACK, HEADPHONES	
J302	RJJ1D25ZA-C	JACK, MIX MIC	
J303	SJF3057-5N	JACK, AUX IN	
J820	RJJ1SE01-H	JACK, AC/DC IN	⚠

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1-3	ERDS2TJ104T	1/4W 100K
R4	ERDS2TJ470T	1/4W 47
R5	ERDS2TJ151T	1/4W 150
R6	ERDS2TJ331T	1/4W 330
R7	ERDS2TJ391T	1/4W 390
R8	ERDS2TJ274T	1/4W 270K
R9	ERDS2TJ105T	1/4W 1M
R10	ERDS2TJ561T	1/4W 560
R11	ERDS2TJ330T	1/4W 33
R12	ERDS2TJ104T	1/4W 100K
R13	ERDS2TJ470T	1/4W 47
R15	ERDS2TJ391T	1/4W 390
R16	ERDS2TJ683T	1/4W 68K
R17	ERDS2TJ104T	1/4W 100K
R18	ERDS2TJ103T	1/4W 10K
R20	ERDS2TJ332T	1/4W 3.3K
R21	ERDS2TJ562T	1/4W 5.6K
R22	ERDS2TJ473T	1/4W 47K
R23	ERDS2TJ102T	1/4W 1K
R24	ERDS2TJ223T	1/4W 22K
R25	ERDS2TJ103T	1/4W 10K
R27	ERDS2TJ151T	1/4W 150
R28,29	ERDS2TJ471T	1/4W 470
R30	ERDS2TJ104T	1/4W 100K
R31	ERDS2TJ222T	1/4W 2.2K
R32	ERDS2TJ473T	1/4W 47K
R33-38	ERDS2TJ103T	1/4W 10K
R39	ERDS2TJ102T	1/4W 1K
R40	ERDS2TJ223T	1/4W 22K
R50-52	ERDS2TJ103T	1/4W 10K
R55	ERDS2TJ103T	1/4W 10K
R56	ERDS2TJ222T	1/4W 2.2K
R57	ERDS2TJ473T	1/4W 47K
R58	ERDS2TJ102T	1/4W 1K
R59	ERDS2TJ332T	1/4W 3.3K
R60	ERDS2TJ104T	1/4W 100K
R61	ERDS2TJ332T	1/4W 3.3K
R62,63	ERDS2TJ681T	1/4W 680
R71	ERDS2TJ274T	1/4W 270K
R101	ERDS2TJ334T	1/4W 330K
R102	ERDS2TJ104T	1/4W 100K
R103	ERDS2TJ330T	1/4W 33
R104	ERDS2TJ332T	1/4W 3.3K
R106	ERDS2TJ332T	1/4W 3.3K
R107	ERDS2TJ103T	1/4W 10K
R108	ERDS2TJ334T	1/4W 330K
R109	ERDS2TJ153T	1/4W 15K
R110	ERDS2TJ332T	1/4W 3.3K
R112	ERDS2TJ823T	1/4W 82K
R114	ERDS2TJ151T	1/4W 150
R115	ERDS2TJ102T	1/4W 1K
R116	ERDS2TJ104T	1/4W 100K
R117	ERDS2TJ223T	1/4W 22K
R118	ERDS2TJ473T	1/4W 47K
R120	ERDS2TJ393T	1/4W 39K
R121	ERDS2TJ225T	1/4W 2.2M
R122	ERDS2TJ273T	1/4W 27K
R123	ERDS2TJ392T	1/4W 3.9K
R124	ERDS2TJ101T	1/4W 100
R129	ERDS2TJ332T	1/4W 3.3K
R130	ERDS2TJ103T	1/4W 10K
R131	ERDS2TJ333T	1/4W 33K
R132	ERDS2TJ473T	1/4W 47K
R133	ERDS2TJ153T	1/4W 15K
R134	ERDS2TJ473T	1/4W 47K
R135	ERDS2TJ123T	1/4W 12K
R137	ERDS2TJ332T	1/4W 3.3K
R138	ERDS2TJ2R7T	1/4W 2.7
R139	ERDS2TJ151T	1/4W 150
R145	ERDS2TJ101T	1/4W 100
R198	ERDS2TJ222T	1/4W 2.2K
R199	ERDS2TJ223T	1/4W 22K
R201	ERDS2TJ334T	1/4W 330K
R202	ERDS2TJ104T	1/4W 100K
R203	ERDS2TJ330T	1/4W 33
R204	ERDS2TJ332T	1/4W 3.3K
R206	ERDS2TJ332T	1/4W 3.3K
R207	ERDS2TJ103T	1/4W 10K
R208	ERDS2TJ334T	1/4W 330K
R209	ERDS2TJ153T	1/4W 15K
R210	ERDS2TJ332T	1/4W 3.3K
R212	ERDS2TJ823T	1/4W 82K
R214	ERDS2TJ151T	1/4W 150
R215	ERDS2TJ102T	1/4W 1K
R216	ERDS2TJ104T	1/4W 100K
R217	ERDS2TJ223T	1/4W 22K
R218	ERDS2TJ473T	1/4W 47K
R220	ERDS2TJ393T	1/4W 39K
R221	ERDS2TJ225T	1/4W 2.2M
R222	ERDS2TJ273T	1/4W 27K
R223	ERDS2TJ392T	1/4W 3.9K
R224	ERDS2TJ101T	1/4W 100
R229	ERDS2TJ332T	1/4W 3.3K
R230	ERDS2TJ103T	1/4W 10K
R231	ERDS2TJ333T	1/4W 33K
R232	ERDS2TJ473T	1/4W 47K
R233	ERDS2TJ153T	1/4W 15K
R234	ERDS2TJ473T	1/4W 47K
R235	ERDS2TJ123T	1/4W 12K
R237	ERDS2TJ332T	1/4W 3.3K
R238	ERDS2TJ2R7T	1/4W 2.7
R239	ERDS2TJ151T	1/4W 150
R245	ERDS2TJ101T	1/4W 100
R298	ERDS2TJ222T	1/4W 2.2K
R299	ERDS2TJ223T	1/4W 22K
R303	ERDS2TJ180T	1/4W 18
R304	ERDS2TJ334T	1/4W 330K
R307	ERDS2TJ102T	1/4W 1K
R308	ERD25VJ101T	1/4W 100
R309	ERDS2TJ682T	1/4W 6.8K
R310	ERDS2TJ332T	1/4W 3.3K
R311	ERDS2TJ102T	1/4W 1K
R313,314	ERDS2TJ102T	1/4W 1K
R316	ERDS2TJ103T	1/4W 10K
R317	ERDS2TJ472T	1/4W 4.7K
R320	ERDS2TJ123T	1/4W 12K
R321	ERDS2TJ4R7T	1/4W 4.7
R322-324	ERDS2TJ472T	1/4W 4.7K
R325	ERD25VJ101T	1/4W 100
R326,327	ERDS2TJ103T	1/4W 10K
R334	ERDS2TJ391T	1/4W 390
R336	ERDS2TJ102T	1/4W 1K
R337	ERDS2TJ2R7T	1/4W 2.7
R340	ERDS2TJ102T	1/4W 1K
R341	ERDS2TJ2R7T	1/4W 2.7
R342	ERDS2TJ333T	1/4W 33K
R344,345	ERDS2TJ472T	1/4W 4.7K
R348	ERDS2TJ103T	1/4W 10K
R349	ERDS2TJ472T	1/4W 4.7K
R354	ERDS2TJ332T	1/4W 3.3K
R355	ERDS2TJ223T	1/4W 22K
R357	ERDS2TJ103T	1/4W 10K
R358	ERDS2TJ102T	1/4W 1K
R359,360	ERDS2TJ103T	1/4W 10K
R361	ERDS2TJ472T	1/4W 4.7K
R362,363	ERDS2TJ391T	1/4W 390
R364	ERDS2TJ103T	1/4W 10K
R365	ERDS2TJ153T	1/4W 15K
R366	ERDS2TJ223T	1/4W 22K
R367	ERDS2TJ103T	1/4W 10K
R368	ERDS2TJ473T	1/4W 47K
R370	ERDS2TJ272T	1/4W 2.7K
R373	ERD25VJ101T	1/4W 100
R374	ERDS2TJ102T	1/4W 1K

Ref. No.	Part No.	Values & Remarks
R375	ERDS2TJ106T	1/4W 10M
R376	ERDS2TJ682T	1/4W 6. 8K
R377	ERDS2TJ1R0T	1/4W 1. 0
R378	ERDS2TJ1R5T	1/4W 1. 5
R380, 381	ERDS2TJ102T	1/4W 1K
R383	ERDS2TJ473T	1/4W 47K
R384, 385	ERDS2TJ223T	1/4W 22K
R386	ERDS2TJ682T	1/4W 6. 8K
R388	ERDS2TJ103T	1/4W 10K
R390	ERDS2TJ102T	1/4W 1K
R701	ERDS2TJ472T	1/4W 4. 7K
R702	ERDS2TJ103T	1/4W 10K
R705	ERDS2TJ103T	1/4W 10K
R706	ERDS2TJ823T	1/4W 82K
R707	ERDS2TJ123T	1/4W 12K
R708	ERDS2TJ683T	1/4W 68K
R710	ERDS2TJ333T	1/4W 33K
R711	ERDS2TJ105T	1/4W 1M
R712, 713	ERDS2TJ102T	1/4W 1K
R715	ERDS2TJ222T	1/4W 2. 2K
R716	ERDS2TJ102T	1/4W 1K
R717	ERDS2TJ104T	1/4W 100K
R720	ERDS2TJ120T	1/4W 12
R721	ERDS2TJ471T	1/4W 470
R722	ERDS2TJ222T	1/4W 2. 2K
R723	ERDS2TJ682T	1/4W 6. 8K
R725	ERDS2TJ103T	1/4W 10K
R726	ERDS2TJ562T	1/4W 5. 6K
R727	ERDS2TJ332T	1/4W 3. 3K
R728	ERDS2TJ682T	1/4W 6. 8K
R732	ERDS2TJ562T	1/4W 5. 6K
R733	ERDS2TJ473T	1/4W 47K
R735	ERDS2TJ392T	1/4W 3. 9K
R736	ERDS2TJ472T	1/4W 4. 7K
R737	ERDS2TJ102T	1/4W 1K
R738	ERDS2TJ104T	1/4W 100K
R740	ERDS2TJ471T	1/4W 470
R741	ERDS2TJ102T	1/4W 1K
R742	ERDS2TJ104T	1/4W 100K
R743	ERDS2TJ471T	1/4W 470
R745	ERDS2TJ470T	1/4W 47
R746	ERDS2TJ223T	1/4W 22K
R748	ERDS2TJ222T	1/4W 2. 2K
R749	ERDS2TJ224T	1/4W 220K
R750-752	ERDS2TJ562T	1/4W 5. 6K
R755	ERDS2TJ223T	1/4W 22K
R800-806	ERDS2TJ103T	1/4W 10K
R807	ERDS2TJ223T	1/4W 22K
R808	ERDS2TJ103T	1/4W 10K
R809-811	ERDS2TJ104T	1/4W 100K
R812-816	ERDS2TJ103T	1/4W 10K
R817	ERDS2TJ124T	1/4W 120K

Ref. No.	Part No.	Values & Remarks
R818	ERDS2TJ106T	1/4W 10M
R819	ERDS2TJ334T	1/4W 330K
R820	ERDS2TJ105T	1/4W 1M
R821	ERDS2TJ101T	1/4W 100
R822, 823	ERDS2TJ472T	1/4W 4. 7K
R824, 825	ERDS2TJ104T	1/4W 100K
R826	ERDS2TJ103T	1/4W 10K
R828, 829	ERDS2TJ102T	1/4W 1K
R830	ERDS2TJ104T	1/4W 100K
R831-836	ERDS2TJ474T	1/4W 470K
R837, 838	ERDS2TJ103T	1/4W 10K
R840	ERDS2TJ472T	1/4W 4. 7K
R842, 843	ERDS2TJ472T	1/4W 4. 7K
R845	ERDS2TJ103T	1/4W 10K
R846	ERDS2TJ474T	1/4W 470K
R847	ERDS2TJ473T	1/4W 47K
R848	ERDS2TJ393T	1/4W 39K
R849	ERDS2TJ474T	1/4W 470K
R850	ERDS2TJ123T	1/4W 12K
R851-853	ERDS2TJ471T	1/4W 470
R854	ERDS2TJ151T	1/4W 150
R855	ERDS2TJ103T	1/4W 10K
R857	ERDS2TJ222T	1/4W 2. 2K
R887, 888	ERDS2TJ102T	1/4W 1K
R889	ERDS2TJ472T	1/4W 4. 7K
R891	ERDS2TJ103T	1/4W 10K
R892	ERDS2TJ683T	1/4W 68K
R895	ERDS2TJ102T	1/4W 1K
R897-899	ERDS2TJ103T	1/4W 10K
R900	ERDS2TJ471T	1/4W 470
R901	ERDS2TJ393T	1/4W 39K
J127	ERD25V0R00T	1/4W 0
		CAPACITORS
C1	ECBT1H180JC5	50V 18P
C2	ECBT1H102KB5	50V 1000P
C3	ECBT1H330J5	50V 33P
C4	ECBT1H102KB5	50V 1000P
C5	ECBT1C103MS5	16V 0. 01U
C6, 7	ECBT1H181KB5	50V 180P
C8	ECBT1H102KB5	50V 1000P
C9	ECBT1H4R7KC5	50V 4. 7P
C10	ECBT1H2R2KC5	50V 2. 2P
C11, 12	ECBT1H102KB5	50V 1000P
C14, 15	ECBT1H102KB5	50V 1000P
C18	ECBT1H150JC5	50V 15P
C19	ECBT1H100JC5	50V 10P
C20	ECFR1C473MR	16V 0. 047U
C23	ECEA1HN010SB	50V 1U
C24	ECBT1C103MS5	16V 0. 01U
C25	ECFR1C223MR	16V 0. 022U

Ref. No.	Part No.	Values & Remarks
C26	ECEA1CU101B	16V 100U
C27	ECBT1C103MS5	16V 0. 01U
C29	ECEA1HU010B	50V 1U
C30	ECBT1H270J5	50V 27P
C31	ECEA1AU470B	10V 47U
C32	ECFR1C223MR	16V 0. 022U
C33, 34	ECEA1CU100B	16V 10U
C35	ECFR1C223MR	16V 0. 022U
C36	ECBT1H331KB5	50V 330P
C37	ECFR1C683MR	16V 0. 068U
C38, 39	ECFR1C823MR	16V 0. 082U
C40, 41	ECFR1C123MR	16V 0. 012U
C44	ECBT1H330J5	50V 33P
C45	ECFR1C223MR	16V 0. 022U
C46	ECEA0JU101B	6. 3V 100U
C47	ECFR1C473MR	16V 0. 047U
C48	ECEA1CU100B	16V 10U
C49	ECBT1H270J5	50V 27P
C50	ECBT1H300J5	50V 30P
C51	ECBT1H102KB5	50V 1000P
C52	ECEA1EU3R3B	25V 3. 3U
C53	ECEA1HU010B	50V 1U
C60	ECEA1HN010SB	50V 1U
C61	ECFR1C223MR	16V 0. 022U
C62	ECFR1C103MR	16V 0. 01U
C63	ECBT1H150JC5	50V 15P
C64, 65	ECFR1C223MR	16V 0. 022U
C66	ECBT1H102KB5	50V 1000P
C67	ECBT1H471KB5	50V 470P
C69	ECBT1C332MR5	16V 3300P
C70	ECFR1C103MR	16V 0. 01U
C71	ECBT1H102KB5	50V 1000P
C72	ECBT1H331KB5	50V 330P
C73	ECFR1C223MR	16V 0. 022U
C74	ECBT1H470J5	50V 47P
C78	ECBT1H331KB5	50V 330P
C82	ECBT1C103MS5	16V 0. 01U
C101	ECEA50M1RB	50V 1U
C102	ECBT1H101KB5	50V 100P
C103	ECBT1H471KB5	50V 470P
C104	ECEA0JK101B	6. 3V 100U
C105	ECFR1C333KR	16V 0. 033U
C106	ECEA1HK010B	50V 1U
C107	ECBT1C152MR5	16V 1500P
C108	ECEA1HK010B	50V 1U
C109	ECFR1C104MR	16V 0. 1U
C111	ECBT1H101KB5	50V 100P
C112	ECEA1CK100B	16V 10U
C113	ECFR1C103MR	16V 0. 01U
C115, 116	ECEA1HK010B	50V 1U
C117	ECBT1H101KB5	50V 100P
C118, 119	ECEA1HK2R2B	50V 2. 2U

Ref. No.	Part No.	Values & Remarks
C120	ECFR1C153MR	16V 0. 015U
C122	ECEA1CK100B	16V 10U
C123, 124	ECEA1AU101B	10V 100U
C125	ECEA1HKR22B	50V 0. 22U
C126	ECBT1H471KB5	50V 470P
C127	ECEA1AU222E	10V 2200U
C128	ECQV1H224JZ3	50V 0. 22U
C129	ECEA1HK0R1B	50V 0. 1U
C130	ECBT1H101KB5	50V 100P
C150	ECEA0JU332E	6. 3V 3300U
C201	ECEA50M1RB	50V 1U
C202	ECBT1H101KB5	50V 100P
C203	ECBT1H471KB5	50V 470P
C204	ECEA0JK101B	6. 3V 100U
C205	ECFR1C333KR	16V 0. 033U
C206	ECEA1HK010B	50V 1U
C207	ECBT1C152MR5	16V 1500P
C208	ECEA1HK010B	50V 1U
C209	ECFR1C104MR	16V 0. 1U
C211	ECBT1H101KB5	50V 100P
C212	ECEA1CK100B	16V 10U
C213	ECFR1C103MR	16V 0. 01U
C215, 216	ECEA1HK010B	50V 1U
C217	ECBT1H101KB5	50V 100P
C218, 219	ECEA1HK2R2B	50V 2. 2U
C220	ECFR1C153MR	16V 0. 015U
C222	ECEA1CK100B	16V 10U
C223, 224	ECEA1AU101B	10V 100U
C225	ECEA1HKR22B	50V 0. 22U
C226	ECBT1H471KB5	50V 470P
C227	ECEA1AU222E	10V 2200U
C228	ECQV1H224JZ3	50V 0. 22U
C229	ECEA1HK0R1B	50V 0. 1U
C230	ECBT1H101KB5	50V 100P
C250	ECEA0JU332E	6. 3V 3300U
C301	ECEA1HK010B	50V 1U
C302	ECBT1H101KB5	50V 100P
C304	ECEA1HK010B	50V 1U
C305	ECEA1AU101B	10V 100U
C306	ECEA1AK330B	10V 33U
C307	ECEA1CK100B	16V 10U
C308	ECQV1H474JZ3	50V 0. 47U
C310	ECQP2A392JZT	100V 3900P
C311	ECQP2A103JZT	100V 0. 01U
C312	ECQP2A153JZT	100V 0. 015U
C313	ECBT1C103MS5	16V 0. 01U
C316	ECEA1HK010B	50V 1U
C317	ECEA1AU101B	10V 100U
C318	ECQV1H473JZ3	50V 0. 047U
C319, 320	ECBT1C332MR5	16V 3300P
C323	ECEA1AU221B	10V 220U
C326	ECEA1AK330B	10V 33U

Ref. No.	Part No.	Values & Remarks
C327	ECEA0JK101B	6. 3V 100U
C335	ECEA1AU221B	10V 220U
C336	ECEA1EU221B	25V 220U
C337	ECQP2A822JZT	100V 8200P
C338	ECFR1C104MR	16V 0. 1U
C342	ECEA1AK330B	10V 33U
C343	ECEA1HK2R2B	50V 2. 2U
C344	ECEA1AU101B	10V 100U
C345	ECEA1EU221B	25V 220U
C346	ECEA1AU471B	10V 470U
C348	ECEA1EU472	25V 4700U
C349	ECFR1C104MR	16V 0. 1U
C350	ECBT1C103MS5	16V 0. 01U
C352-355	ECKR1H103ZF5	50V 0. 01U
C357	ECEA1AU101B	10V 100U
C358	ECEA1CK100B	16V 10U
C362	ECBT1C472MR5	16V 4700P
C365	ECBT1C103MS5	16V 0. 01U
C367	ECBT1H471KB5	50V 470P
C376, 377	ECEA1AU221B	10V 220U
C380, 381	ECBT1C103MS5	16V 0. 01U
C382	ECEA1AU101B	10V 100U
C701	ECEA0JU471B	6. 3V 470U
C702	ECEA1AU221B	10V 220U
C703, 704	ECFR1C104MR	16V 0. 1U
C705	ECEA1CN100SB	16V 10U
C706	ECFR1C104MR	16V 0. 1U
C707	ECEA0JU101B	6. 3V 100U
C708	ECBT1H681KB5	50V 680P
C710	ECEA1HU010B	50V 1U
C711	ECBT1H470J5	50V 47P
C712	ECEA1HU010B	50V 1U
C713	ECEA1HN010SB	50V 1U
C715	ECFR1C333KR	16V 0. 033U
C716	ECEA1HN010SB	50V 1U
C717	ECFR1C333KR	16V 0. 033U
C718	ECBT1H102KB5	50V 1000P
C720	ECEA1HNR47SB	50V 0. 47U
C721	ECFR1C683MR	16V 0. 068U
C722	ECEA1HNR47SB	50V 0. 47U
C723	ECEA1AN220SB	10V 22U
C725	ECFR1C104MR	16V 0. 1U
C726	ECQV1H334JZ3	50V 0. 33U
C727	ECQV1H474JZ3	50V 0. 47U
C728	ECEA1CU220B	16V 22U
C730	ECEA1CU220B	16V 22U
C733	ECBT1H270J5	50V 27P
C735	ECBT1H270J5	50V 27P
C736	ECBT1H104ZF5	50V 0. 1U
C737	ECEA0JU471B	6. 3V 470U
C738	ECEA1CU100B	16V 10U
C741	ECBT1C103MR5	16V 0. 01U

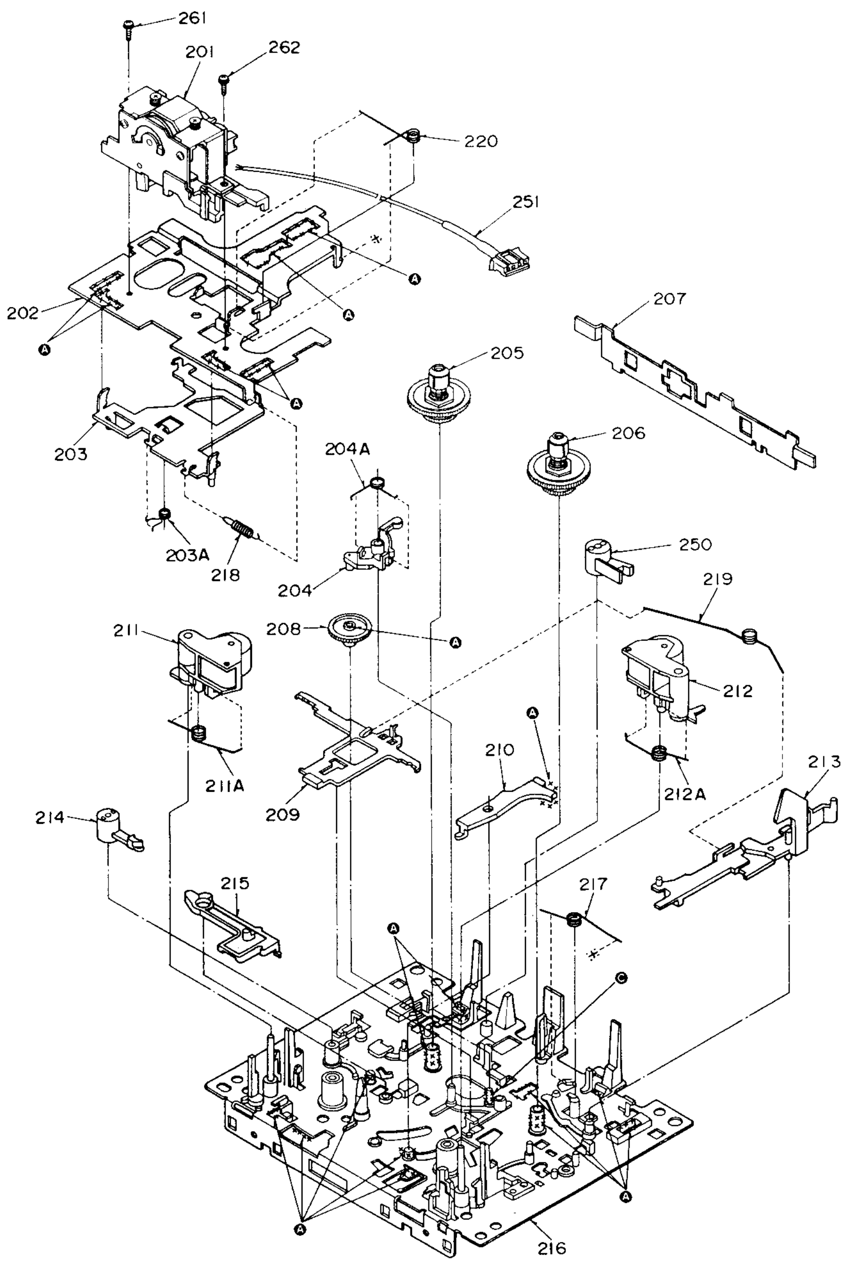
Ref. No.	Part No.	Values & Remarks
C742	ECEA0JU101B	6. 3V 100U
C743	ECBT1H104ZF5	50V 0. 1U
C747	ECBT1C332MR5	16V 3300P
C748	ECFR1C333KR	16V 0. 033U
C750	ECEA0JU101B	6. 3V 100U
C751	ECFR1C333KR	16V 0. 033U
C752	ECEA1HUR33B	50V 0. 33U
C753	ECEA1HPS010B	50V 1U
C755	ECEA1HPS010B	50V 1U
C756	ECBT1C332MR5	16V 3300P
C757	ECEA1CU100B	16V 10U
C758	ECFR1C104MR	16V 0. 1U
C760	ECFR1C104MR	16V 0. 1U
C761	ECEA0JU471B	6. 3V 470U
C762, 763	ECBT1H471KB5	50V 470P
C800-803	ECBT1H331KB5	50V 330P
C804, 805	ECBT1C103MS5	16V 0. 01U
C806	ECEA0JK101B	6. 3V 100U
C807, 808	ECBT1H102KB5	50V 1000P
C809	ECEA0JK101B	6. 3V 100U
C810, 811	ECBT1H220JC5	50V 22P
C813	ECEA1CK100B	16V 10U
C814, 815	ECBT1H331KB5	50V 330P
C816	ECEA0JK101B	6. 3V 100U
C817	ECBT1H101KB5	50V 100P
C818	ECBT1H151KB5	50V 150P
C820	ECBT1C103MS5	16V 0. 01U
C821, 822	ECFR1C333KR	16V 0. 033U
C823	ECBT1H102KB5	50V 1000P
C857	ECEA1AU221E	10V 220U
C971	ECBT1H101KB5	50V 100P

MECHANISM PARTS LOCATION

1 2 3 4 5 6 7 8 9

A B C D E F

(TOP VIEW)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201
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203
204A
203A
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250
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211A
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212A
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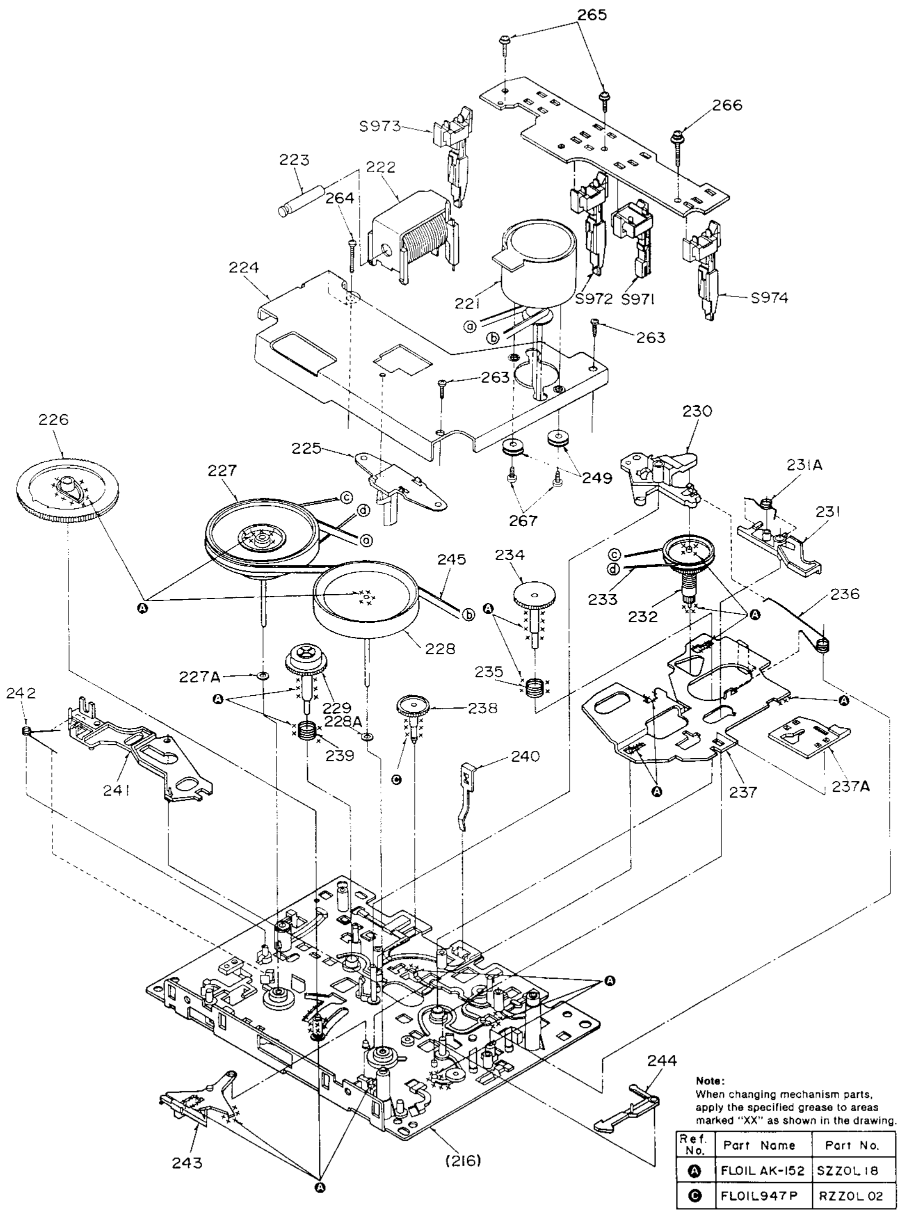
C

(BOTTOM VIEW)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S971
S974
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231A
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227A
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228A
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237A
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243
(216)
A
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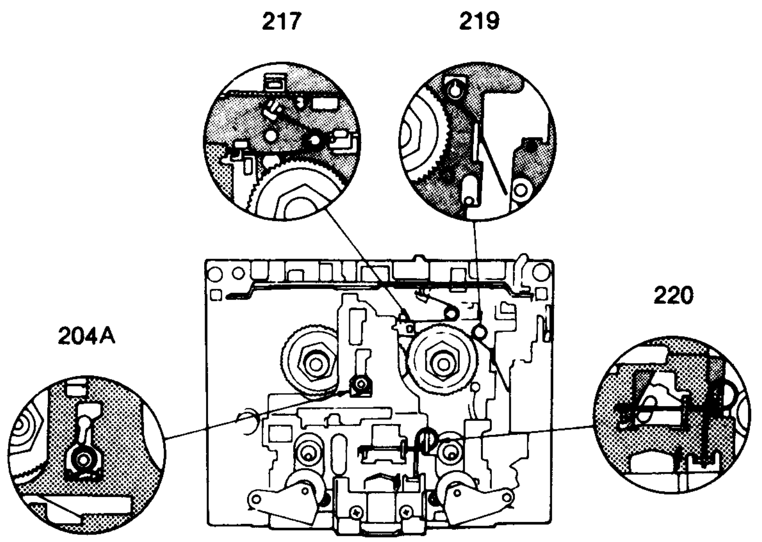
D

Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZOL18
Ⓒ	FLOIL947P	RZZOL02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204A
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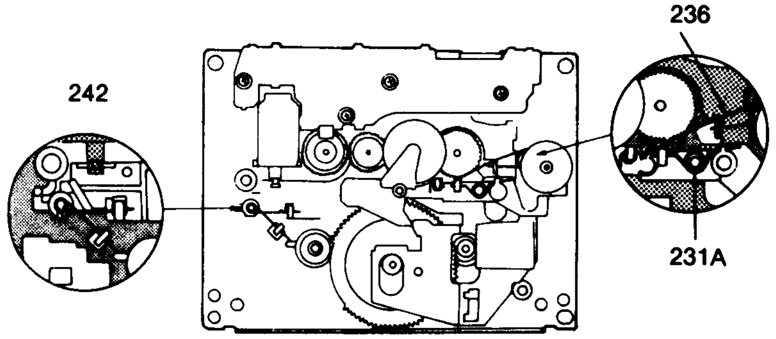
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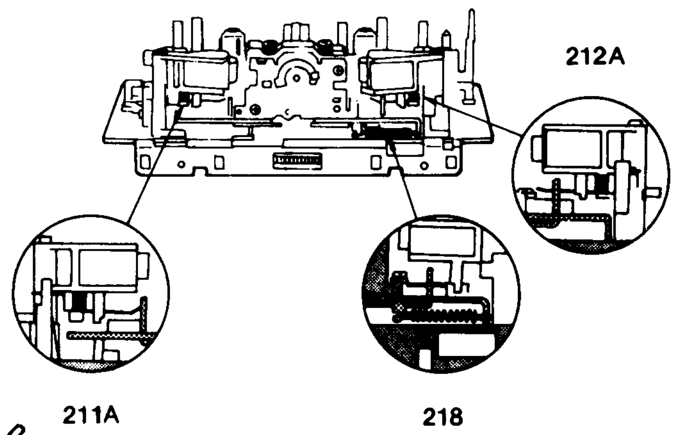
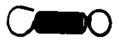
242
231A


212A
211A
218

- **SPRING ILLUSTRATION**
  The spring illustration used shows the actual size so it can be used to check the shape of the spring.
  (The illustration shows the spring separated from the mechanism.)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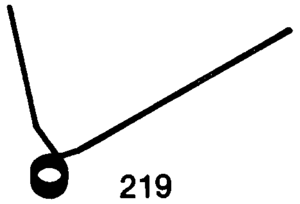
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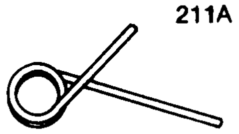
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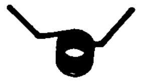
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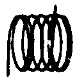
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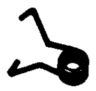
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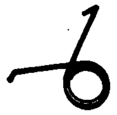
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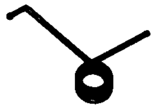
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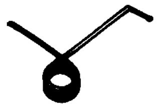
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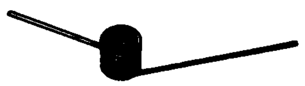
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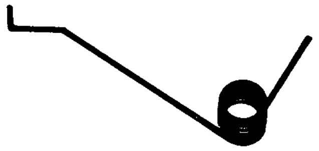
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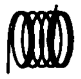
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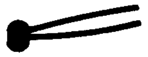
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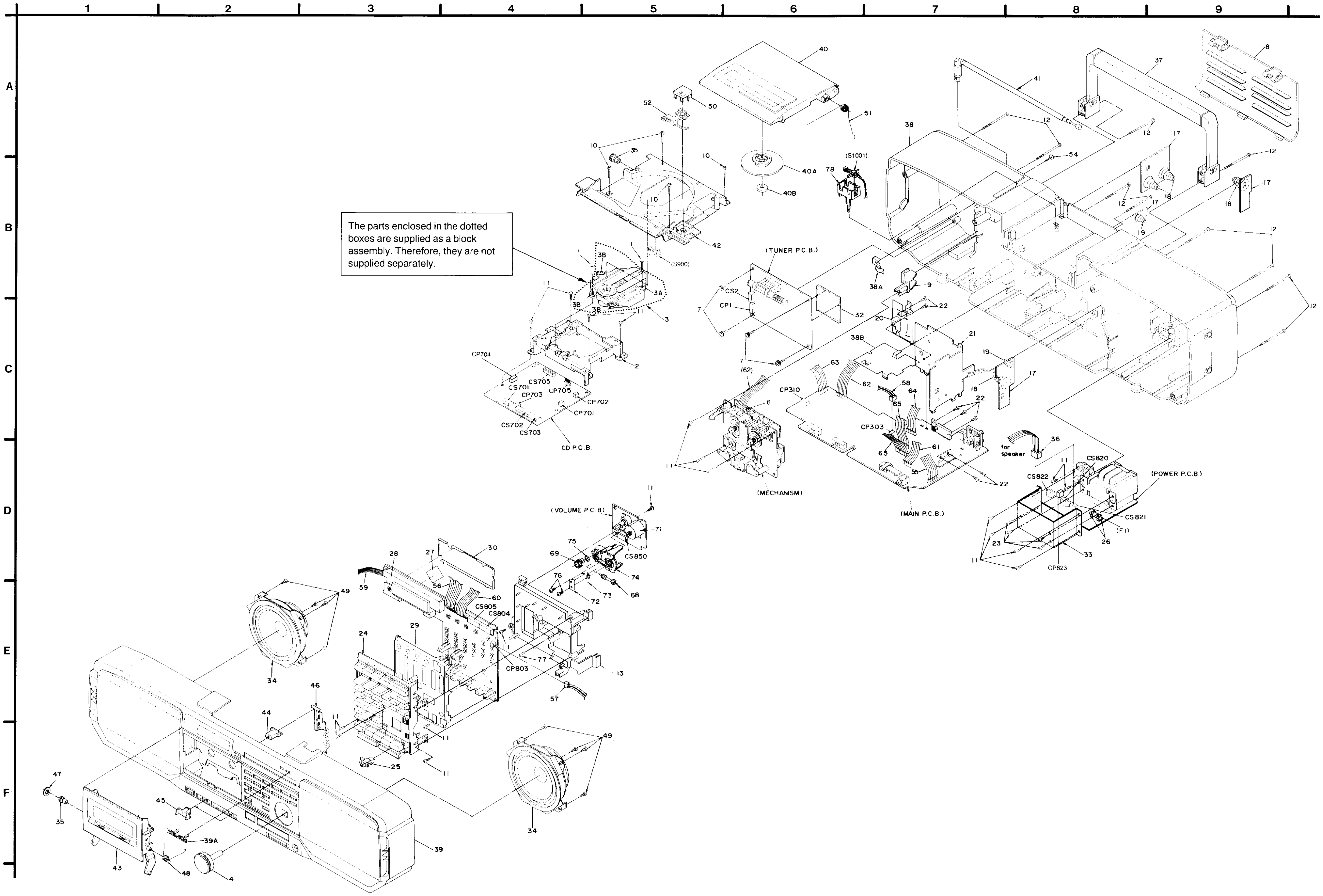
Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM	
201	RXQ0007	HEAD ASS'Y	
202	RUA793ZF	CHASSIS	
203	RZLAR300A	LEVER ASS'Y	
203A	RUW143ZA	SPRING	
204	1UB0089Z	ARM	
204A	RUW148ZA	SPRING	
205	1DM0018ZB	REEL TABLE ASS'Y	
206	1DM0017ZB	REEL TABLE ASS'Y	
207	RML0069-1	LEVER	
208	RDG5772ZC	GEAR	
209	RUB508ZB	LEVER	
210	RUB506ZB	LEVER	
211	1UB0088ZB	PINCH ROLLER	
211A	RUW141ZA	SPRING	
212	1UB0087ZB	PINCH ROLLER	
212A	RUW140ZB	SPRING	
213	RUB507ZD	LEVER	
214	RNL1ZD	ARM	
215	RUB503ZD	LEVER	
216	RZUAR300A	CHASSIS ASS'Y	
217	RUW142ZA	SPRING	
218	RUD105ZA	SPRING	
219	RUW144ZA	SPRING	
220	RUW139ZA	SPRING	
221	RFM173ZA	MOTOR ASS'Y	
222	1UE0015ZB	PLUNGER	
223	RUB428ZE	SHAFT	
224	RUL1030YA	PLATE	
225	RMD5014ZC	SPACER	
226	RDG5927ZG	GEAR	
227	1DW0037ZB	FLYWHEEL ASS'Y	
227A	RNW139ZA	WASHER	
228	1DW0038ZB	FLYWHEEL ASS'Y	
228A	RNW138ZA	WASHER	
229	1DG0006ZB	GEAR ASS'Y	
230	RUB513ZD	LEVER	
231	1UB0091Z	LEVER	
231A	RUW146ZA	SPRING	
232	1DR0011ZB	PULLEY ASS'Y	
233	RDV90ZB	BELT	
234	RDG5769ZA	GEAR	
235	RUQ111ZB	SPRING	
236	RUW145ZA	SPRING	
237	1UB0090ZA	ROD	
237A	RUB512ZB	ROD	
238	RDG5773ZA	GEAR	
239	RUQ112ZA	SPRING	
240	RUS609ZC	SPRING	
241	RUB514ZC	LEVER	
242	RUW147ZA	SPRING	
243	RUB515ZA	LEVER	
244	RUB509ZA	LEVER	
245	RDV100ZA	BELT	
249	RHG3032ZA	RUBBER	
250	RNL180ZB	LEVER	
251	REX0062	CABLE ASS'Y	
261	XTW2+6L	SCREW	
262	XTW2+8L	SCREW	
263	XTN26+7J	SCREW	
264	RHE5203ZA	SCREW	
265	XTW2+8S	SCREW	
266	XYC2+JF16	SCREW	
267	RHD26002	SCREW	

■ CABINET PARTS LOCATION



The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore, they are not supplied separately.

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17
54
12
(S1001)
78
40A
40B
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18
19
12
42
(S900)
1
3B
1
11
3A
3B
3B
11
3
2
(TUNER P.C.B.)
CS2
CP1
7
32
38A
9
22
20
12
21
38B
7
CP704
CS705
CS701
CP703
CP705
CP702
CP701
CS702
CS703
CD P.C.B.
(62)
6
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62
58
64
65
CP310
19
18
17
22
CP303
61
65
55
22
11
(MECHANISM)
(MAIN P.C.B.)
36
for speaker
CS820
11
CS822
(POWER P.C.B.)
CS821
(F1)
26
23
33
11
CP823
11
(VOLUME P.C.B.)
71
75
69
CS850
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CS805
CS804
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CP803
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39A
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Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RHM281YA	SHAFT	
2	RMK0051	CHASSIS	
3	S0DD101-3Z	TRAVERSE ASS'Y	
3A	SHGD112	RUBBER	
3B	SHGD113-1	RUBBER	
4	RGW0023-K	KNOB, VOLUME	
6	RJS8T7ZA	SOCKET(J971)	
7	RHD30006	SCREW	
8	RKK0003-K1	BATTERY COVER	
9	RMR0097	SPACER	
10	XTN3+12GFZ	SCREW	
11	XTV3+12G	SCREW	
12	XTV3+60G	SCREW	
13	RMK0030	CHASSIS	
17	RJB0394B	P. C. B.	
18	RJC511ZB	BATTERY SPRING	
19	RJC751ZA	BATTERY SPRING	
20	RMA0125-1	HEAT SINK	
21	RMY0007-1	HEAT SINK	
22	XTV3+10F	SCREW	
23	XTV3+6F	SCREW	
24	RGU0367A-K	KNOB, OPERATION	
25	RGV0012-K	KNOB, TONE	
26	RJF28ZA	FUSE HOLDER	
27	RMC1239ZA	SHIELD PLATE	
28	RMN0013-1	LCD HOLDER	
29	RSC0028-1	SHIELD PLATE	
30	RSC0030-1	SHIELD PLATE	
32	RMC1236ZB	SHIELD PLATE	
33	RMA0069-3	COVER	
34	EAS12P450B	SPEAKER	
35	RDG5782ZB	GEAR	
36	REX0033Y	WIRE ASS'Y	
37	RKH0003	HANDLE ASS'Y	
38	RFKHXDS20EG	REAR CABINET ASS'Y	(EG)
38	RFKHXDS20EB	REAR CABINET ASS'Y	(EB)
38A	RJR0010	TERMINAL	
38B	RSC0029-1	SHIELD PLATE	
39	RFKGXDS20EG	FRONT CABINET ASS'Y	
39A	RGB301YA-0	BADGE	
40	RFKLXDS20EGA	CD COVER ASS'Y	
40A	RYF0016	DISC HOLDER	
40B	RFKNXDT9A	MAGNET ASS'Y	
41	XEARR225DA-Y	TELESCOPIC ANTENNA	
42	RFKNXDS20PB	CD TRAY ASS'Y	
43	RFKLXDS20EGB	CASSETTE LID ASS'Y	
44	RGU0075-K	BUTTON, EJECT	
45	RGV0019-K	KNOB, REV MODE/FM MODE	
46	RML0045	LEVER	
47	RMR0037	WASHER	
48	RUW170ZB	SPRING	
49	XTV3+10G	SCREW	
50	RGU0074-K1	BUTTON, CD EJECT	
51	RME0025-2	SPRING	
52	RML0046	LEVER	
54	XYN3+F12FY	SCREW	
55	REE0210	WIRE ASS'Y(W320)	
56	REE0113	FLAT CABLE (W801)	
57	REX0034Y	WIRE ASS'Y	
58	REX0031-1	WIRE ASS'Y	
59	REX0032Y	WIRE ASS'Y(CW800)	
60	RWJ1110120QQ	FLAT CABLE(W802)	
61	RWJ1109120QQ	FLAT CABLE(W308)	
62	RWJ1108210QQ	FLAT CABLE(W307)	
63	RWJ1107290RR	FLAT CABLE(W311)	
64	RWJ1106240QQ	FLAT CABLE(W312)	
65	RWJ1112220QQ	FLAT CABLE(W304, 305)	
68	RDG5953ZC	GEAR	
69	RDG5954ZA	GEAR	
71	RFM156ZA	MOTOR ASS'Y	
72	RJR0019	EARTH TERMINAL	
73	RMB0017-1	SPRING	
74	RUA867ZB	CHASSIS	
75	RUD129XA	SPRING	
76	XQN17+C33	SCREW	
77	XTN26+6G	SCREW	
78	RMR0131	HOLDER	
		PACKING MATERIALS	
P1	RPK0164	GIFT BOX	
P2	RPN0166	PAD	
P3	RPH653ZA	SHEET	
		ACCESORIES	
A1	RJA20ZD-K	POWER CORD, AC	⚠(EG)
A1	RJA86ZB-K	POWER CORD, AC	⚠(EB)
A2	RQT0538-G	INSTRUCTIONS MANUAL	(EB)
A2	RFKSXDS20EG	INSTRUCTIONS MANUAL	(EG)
A3	RAK-RX302E	REMOTE CONTROL	
A3A	RKK0008	BATTERY COVER	

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DEUTSCH

■ MESSUNGEN UND EINSTELLUNGEN

<TUNER-ABSCHNITT>

•JUSTIERUNG

VOR BEGINN DER ARBEIT BITTE SORGFÄLTIG LESEN	
•Eingangsspannung auf 15 V Gleichstrom einstellen. •Netzschalter einschalten (ON). •Funktionsschalter auf TUNER/MW oder LW setzen. •Lautstärkeregler in Mittenstellung bringen.	•Klangregler in Mittenstellung bringen. •Zum Ablesen der Ausgangsstärke den Ausgang des Signalgebers nicht höher als unbedingt nötig einstellen.

•JUSTIERUNG VON MW-HF

(Alle hier nicht aufgeführten Komponenten werden werkseitig eingestellt. Ihre nachträgliche Justierung ist nicht erforderlich.)

SIGNALGEBER oder WOBBELGENERATOR		ABSTIMMREGLER	ANZEIGE (elektronisches Voltmeter oder Oszilloskop)	EINSTELLUNG (Siehe Abb. 1.)	BEMERKUNGEN
ANSCHLÜSSE	FREQUENZ				
Draht mehrere Umdrehungen zur Schleife wickeln und ein Signal in die Rahmenantenne des Receivers schicken.	594 kHz	Auf Signal abstimmen.	Kopfhörerbuchse (32Ω) (Kabelstecker wie in Abb. 2 vorbereiten und Leitungsdrähte an Meßgerat anschließen)	(*1) L5-1 (MW ANT-Wicklung)	Auf größtmöglichen Ausgang einstellen. L5-1 durch Verschieben der Wicklung entlang dem Ferritkern einstellen.
〃	1.503 kHz	〃	〃	CT1 (MW ANT-Trimmer)	Auf größtmöglichen Ausgang einstellen.
(*1) Nach der Einstellung die Antennenwicklung mit Wachs sichern.					

•JUSTIERUNG VON LW-HF

SIGNALGEBER oder WOBBELGENERATOR		ABSTIMMREGLER	ANZEIGE (elektronisches Voltmeter oder Oszilloskop)	EINSTELLUNG (Siehe Abb. 1.)	BEMERKUNGEN
ANSCHLÜSSE	FREQUENZ				
Draht mehrere Umdrehungen zur Schleife wickeln und ein Signal in die Rahmenantenne des Receivers schicken.	162 kHz	Auf Signal abstimmen.	Kopfhörerbuchse (32Ω) (Kabelstecker wie in Abb. 2 vorbereiten und Leitungsdrähte an Meßgerät anschließen.)	(*2) L5-2 (LW ANT-Wicklung)	Auf größtmöglichen Ausgang einstellen. L5-2 durch Verschieben der Wicklung entlang dem Ferritkern einstellen.
〃	270 kHz	〃	〃	CT2 (LW ANT-Trimmer)	Auf größtmöglichen Ausgang einstellen.
(*2) Nach der Einstellung die Antennenwicklung mit Wachs sichern.					

<CASSETTENDECK-ABSCHNITT>

•JUSTIERUNG

VOR BEGINN DER ARBEIT BITTE SORGFÄLTIG LESEN

- Eingangsspannung auf 15 V Gleichstrom einstellen.
- Netzschalter einschalten (ON).
- Funktionsschalter auf TAPE setzen.
- Lautstärkeregler in Mittenstellung bringen.
- Klangregler in Mittenstellung bringen.
- Zum Ablesen der Ausgangsstärke den Ausgang des Signalgebers nicht höher als unbedingt nötig einstellen.

•JUSTIERUNG VON KOPFAZIMUTH

TEST-KASSETTE	ANZEIGE (elektronisches Voltmeter oder Oszilloskop)	EINSTELLUNG	SOLLWERT	BEMERKUNGEN
QZZCFM (8 kHz, −20 dB)	Kopfhörerbuchse (32Ω) (Kabelstecker wie in Abb. 2 vorbereiten und Leitungsdrähte an Meßgerät anschließen.)	Azimuthschraube (Siehe Abb. 3.)	Max. Ausgang	1. Wiedergabemodus. 2. Auf größtmöglichen Ausgang einstellen.

•JUSTIERUNG DER BANDLAUFGESCHWINDIGKEIT

TEST-KASSETTE	ANZEIGE (elektronisches Voltmeter oder Oszilloskop)	EINSTELLUNG	SOLLWERT	BEMERKUNGEN
QZZCWAT (3 kHz, −10 dB)	Kopfhörerbuchse (32Ω) (Kabelstecker wie in Abb. 2 vorbereiten und Leitungsdrähte an Meßgerät anschließen.)	Motor-Potentiometer (Siehe Abb. 4)	3000±90 Hz	1. Wiedergabe-Betriebsart 2. Stellen Sie das Motor-Potentiometer so ein, daß am Frequenzmesser 3000 ±90 Hz angezeigt werden.

•PRÜFEN DER AUFNAHME-VORMAGNETISIERUNG

TEST-KASSETTE	ANZEIGE (elektronisches Voltmeter oder Oszilloskop)	EINSTELLUNG	SOLLWERT	BEMERKUNGEN
Normalband verwenden	TP1 ...(+) TP2 ...(−) (Siehe Abb. 5.)	——	Normalband... 13±1 mV	•Aufnahmebetrieb

•JUSTIERPUNKTE

Zur Lokalisierung der Testpunkte beziehen Sie sich bitte auf den Leiterplatten-Schaltplan.

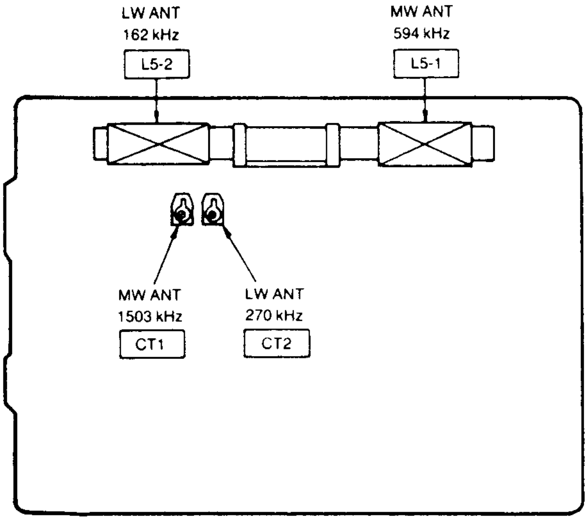

LW ANT
162 kHz
L5-2
MW ANT
594 kHz
L5-1
MW ANT
1503 kHz
CT1
LW ANT
270 kHz
CT2

Abb. 1

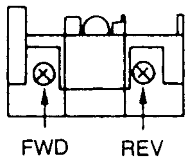


Abb. 3

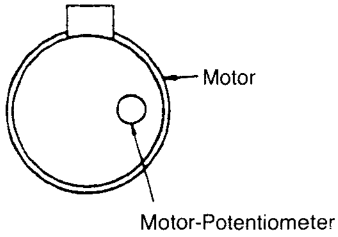

Motor
Motor-Potentiometer

Abb. 4

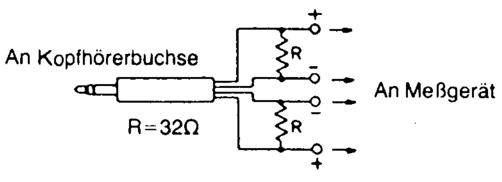
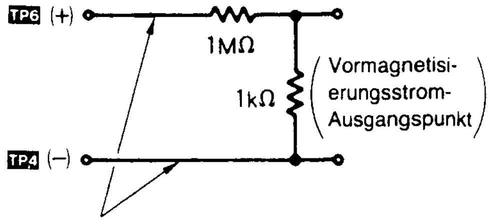

An Kopfhörerbuchse
R=32Ω
R
R
+
−
−
+
An Meßgerät

Abb. 2


TP6 (+)
TP4 (−)
1MΩ
1kΩ
(Vormagnetisierungsstrom-Ausgangspunkt)

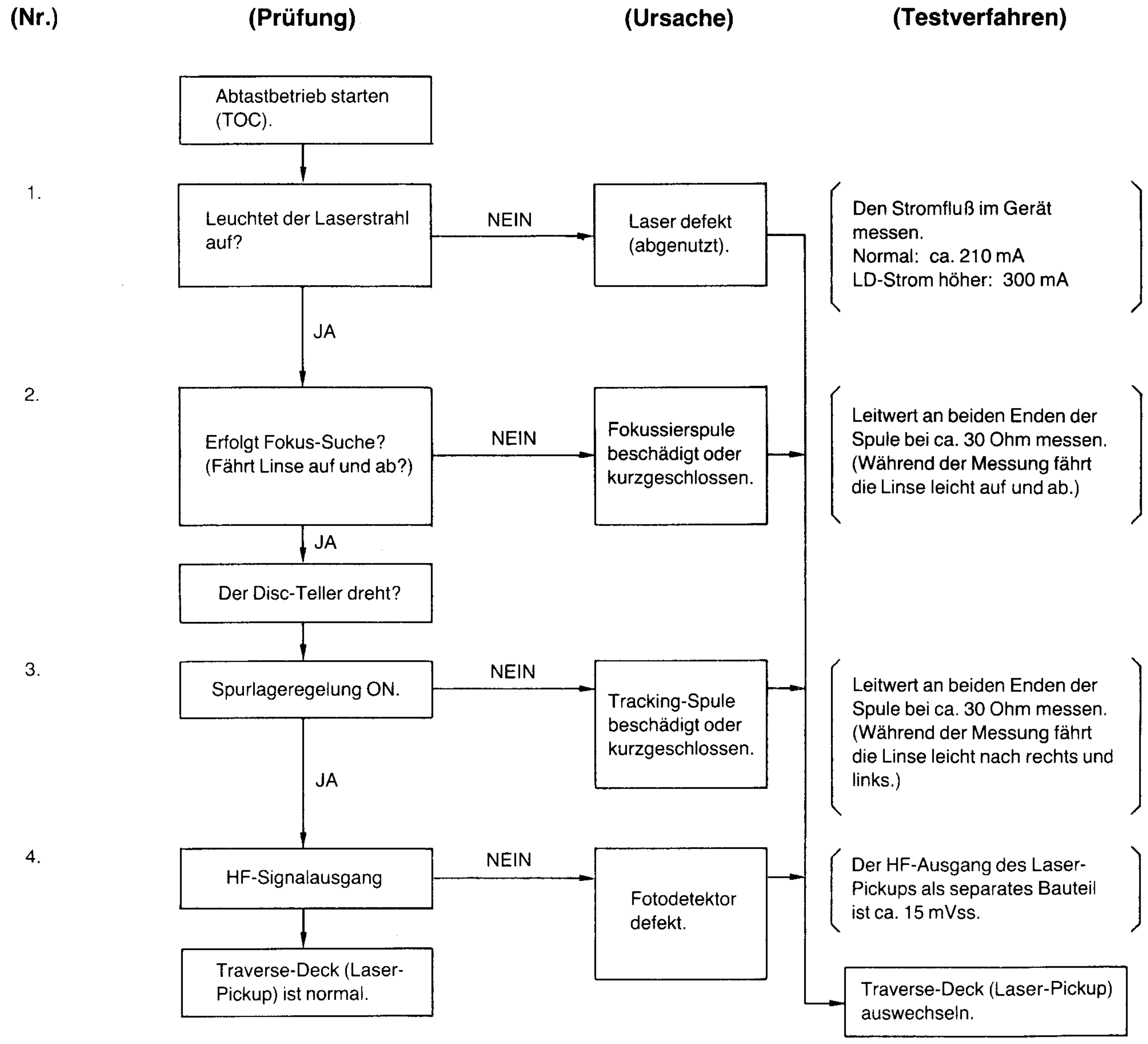
Diese Drähte so kurz wie möglich halten.
(Leitungskapazität: max. 3 pF)

- Um eine Beeinflussung der Vormagnetisierungsschwingung zu vermeiden, die Spannung mit Widerständen von 1 MΩ und 1 kΩ unterteilen, dann die Spannung über den 1 kΩ-Widerstand messen.

Abb. 5

■ STÖRUNGSSUCHE AM TRAVERSE-DECK (LASER-PICKUP)

Prüfen Sie vor dem Auswechseln den Betrieb des Traverse-Decks (Laser-Pickup) wie nachfolgend beschrieben.


(Nr.)
(Prüfung)
(Ursache)
(Testverfahren)
Abtastbetrieb starten (TOC).
1.
Leuchtet der Laserstrahl auf?
NEIN
Laser defekt (abgenutzt).
Den Stromfluß im Gerät messen.
Normal: ca. 210 mA
LD-Strom höher: 300 mA
JA
2.
Erfolgt Fokus-Suche? (Fährt Linse auf und ab?)
NEIN
Fokussierspule beschädigt oder kurzgeschlossen.
Leitwert an beiden Enden der Spule bei ca. 30 Ohm messen. (Während der Messung fährt die Linse leicht auf und ab.)
JA
Der Disc-Teller dreht?
3.
Spurlageregelung ON.
NEIN
Tracking-Spule beschädigt oder kurzgeschlossen.
Leitwert an beiden Enden der Spule bei ca. 30 Ohm messen. (Während der Messung fährt die Linse leicht nach rechts und links.)
JA
4.
HF-Signalausgang
NEIN
Fotodetektor defekt.
Der HF-Ausgang des Laser-Pickups als separates Bauteil ist ca. 15 mVss.
Traverse-Deck (Laser-Pickup) ist normal.
Traverse-Deck (Laser-Pickup) auswechseln.

*Traverse-Deck auswechseln.

- ●Prüfen Sie die elektrischen Schaltungen.
- ●Disc nicht korrekt eingestellt. Nehmen Sie eine erneute Einstellung vor.

(1) Mechanische Einstellung
(2) Fokusabgleich (PD-Abgleich)
(3) Fokusverstärkung-Einstellung
(4) Spurlageverstärkung-Einstellung
(5) Fokusversatz-Einstellung
(6) Spurlageversatz-Einstellung
(7) Spurlageabgleich-Einstellung

} Siehe Seite 5~8

- ●Prüfen Sie die Disc auf Defekte und Kratzer, Wölbung und Außermittigkeit.

●Betriebsprüfung nach Einbau eines neuen Traverse-Decks

a) Prüfen Sie die folgenden Punkte:

∗ Titel-Übersprung
1. Spielen Sie eine normale Musik-Disc.
2. Prüfen Sie durch Betätigen der Titel-Übersprung-Tasten, ob der Suchlauf in Vor- und Rückwärtsrichtung einwandfrei arbeitet.

∗ Manueller Suchlauf
1. Spielen Sie eine normale Musik-Disc.
2. Prüfen Sie durch Betätigen der Manual-Such-Tasten, ob der Suchlauf in mehrfacher Normalgeschwindigkeit (in Vor- und Rückwärtsrichtung) einwandfrei arbeitet.

∗ Prüfung mit Test-Disc
1. Spielen Sie auf der Test-Disc SZZP1054C die Stelle mit dem 0,7-mm-Schwarzloch und der 0,7-mm-Kerbe und vergewissern Sie sich, daß weder Tonausfall noch Störgeräusche auftreten.
2. Spielen Sie die mittleren Stücke der Test-Disc SZZP1056C und vergewissern Sie sich, daß weder Tonausfall noch Störgeräusche auftreten.

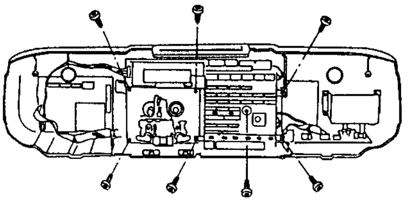
b) Erweist sich nach den obigen Prüfungen der Betrieb als einwandfrei, werden nach einem Wechsel des Traverse-Decks keine CD-Einstellungen erforderlich.

Zur Beachtung: CD-Einstellungen werden in den unten aufgeführten Fällen erforderlich. (Mechanische Einstellungen sind nicht erforderlich.)
(Siehe Punkt 2~7 auf Seite 5~8.)
●Unterbrochene Tonwiedergabe oder Rauschen während der Prüfung a) weiter oben.
●Die Potentiometer VR701 bis VR706 wurden vor dem Einbau des Traverse-Decks verstellt.
●Die ICs der Servo-Schaltung oder die Potentiometer wurden ausgewechselt.

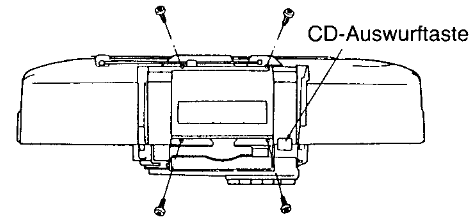
<CD-ABSCHNITT>

Vorsicht:
- Vermeiden Sie es, in den Laserstrahl zu blicken oder ihn zu berühren. (Laserstrahlen sind unsichtbar.) Bei eingeschaltetem CD-Spieler werden Laserstrahlen aus der Aufnahmelinse abgestrahlt. Vermeiden Sie direkte Aussetzung von Laserstrahlen, insbesondere während der Einstellarbeiten.

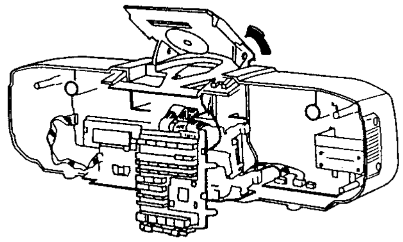
1. Entfernen Sie die Gehäusefront. (Siehe Ref.-Nr. 2 in der Ausbauanleitung.)



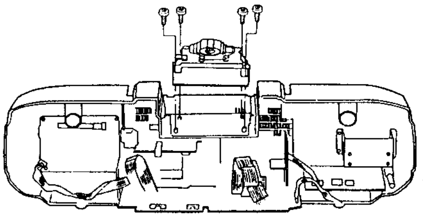
2. Lösen Sie die sieben (7) Schrauben und entfernen Sie die Schalter-PCB, das Laufwerk und das Chassis.


CD-Auswurftaste

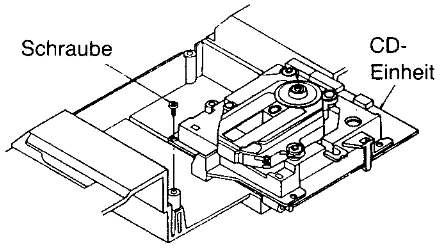
3. Drücken Sie die CD-Auswurftaste und öffnen Sie die Disc-Abdeckung.
4. Lösen Sie die vier (4) Schrauben.



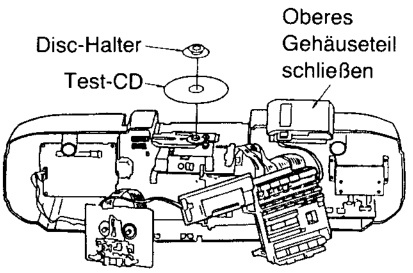
5. Heben Sie das obere Gehäuseteil in Pfeilrichtung nach oben ab.



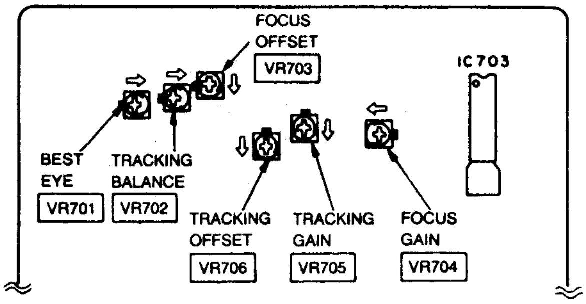
6. Lösen Sie die vier (4) Schrauben und entfernen Sie die CD-Einheit.


Schraube
CD-Einheit

7. Montieren Sie die CD-Einheit.


Disc-Halter
Test-CD
Oberes Gehäuseteil schließen

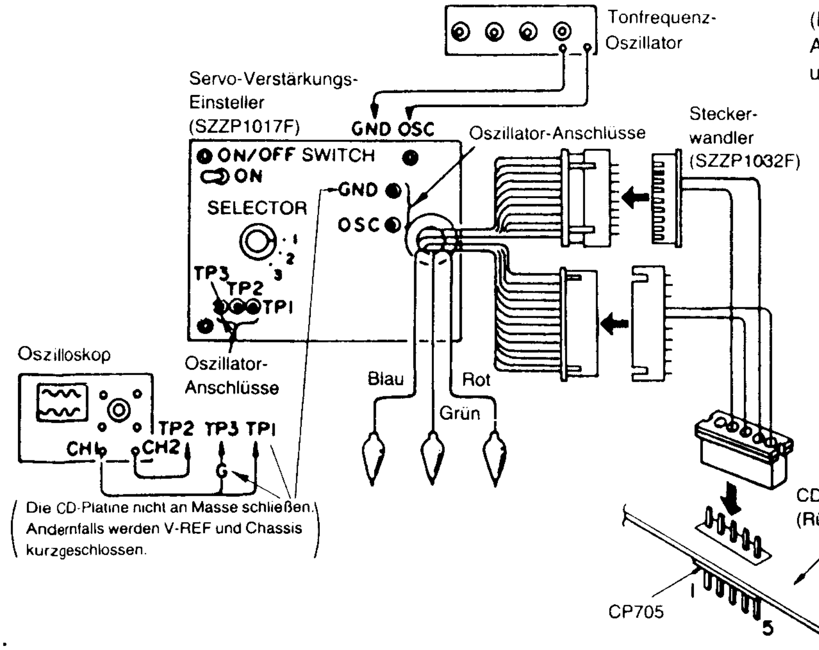
• PROVISORISCHE POTENTIOMETER-EINSTELLUNG


FOCUS OFFSET
VR703
IC703
BEST EYE
VR701
TRACKING BALANCE
VR702
TRACKING OFFSET
VR706
TRACKING GAIN
VR705
FOCUS GAIN
VR704

- Ein Überdrehen des Potentiometers VR704 führt dazu, daß der Drehteller während der Justierung der Fokusverstärkung stoppt. In solch einem Fall das Potentiometer in Ausgangsstellung zurückdrehen und den Justiervorgang neu beginnen. Läßt sich die Ausgangsstellung nicht feststellen, einfach das Potentiometer langsam aus seiner Mittenstellung nach links oder rechts drehen (siehe Pfeile in der Abbildung); sobald der Plattenteller wieder dreht, den Justiervorgang fortsetzen.
- Nach einer vollen Umdrehung oder Austausch eines Potentiometers, dieses in Ausgangsstellung setzen. Läßt sich die Ausgangsstellung nicht feststellen, das Potentiometer in Mittenstellung bringen und den Justiervorgang fortsetzen.

• ANSCHLUSS DES SERVOVERSTÄRKUNGS-EINSTELLERS

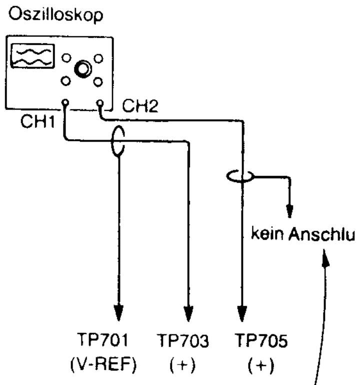
(Justierung von Spurfolge-, Fokus- und Gleichlauf-Verstärkung)


Tonfrequenz-Oszillator
Servo-Verstärkungs-Einsteller (SZZP1017F)
GND OSC
Oszillator-Anschlüsse
Stecker-wandler (SZZP1032F)
ON/OFF SWITCH
ON
GND
OSC
SELECTOR
1
2
3
TP3
TP2
TP1
Oszilloskop
Oszillator-Anschlüsse
Blau
Rot
Grün
CH1
CH2
TP2 TP3 TP1
CD-Platine (Rückseite)
CP705
1
5

Die CD-Platine nicht an Masse schließen. Andernfalls werden V-REF und Chassis kurzgeschlossen.

• ANSCHLUSS DES OSZILLOSKOPS

(Mechanische Einstellung und Augenmuster Einstellung, Fokusversatz und Spurfolgeversatz)


Oszilloskop
CH1
CH2
kein Anschluß
TP701 (V-REF)
TP703 (+)
TP705 (+)

Die CD-Platine nicht an Masse schließen. Andernfalls werden V-REF und Chassis kurzgeschlossen.

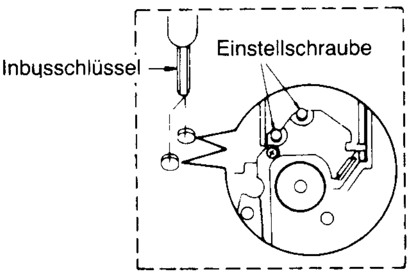
Achtung:
1. Schließen Sie während der Einstellvorgänge niemals die Sonde CH-2 an Masse (GND), weil andernfalls die V-REF-Leitung kurzgeschlossen wird. (Schließen Sie Sonde CH-1 an den vorgeschriebenen Prüfpunkt an; siehe Beschreibung zu den einzelnen Abschnitten.)
2. TP3 und GND von SZZP1017F und TP4, Chassis von SZZP1017F haben alle das gleiche V-REF-Potential.

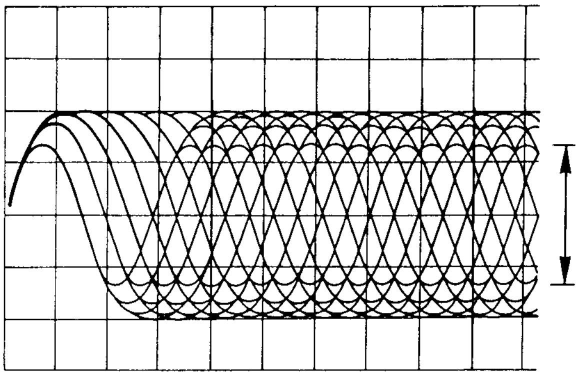
Meßgeräte und Sonderwerkzeug

- Servo-Verstärkungs-Einsteller (SZZP1017F oder SZZP1094C)
- Test-Discs
  1. Spiel-CD (SZZP1054C oder SZZP1014F)
  2. Ungleichmäßige Test-CD (SZZP1056C)
  3. Schwarzstreifen-Test-CD (SZZP1057C)
- Normale CD
- Doppelstrahl-Oszilloskop mit 30 MHz Bandbreite oder höher (mit EXT-Trigger und 1:1-Sonde).
- Tonfrequenz-Oszillator (AF)
- Steckerwandler (SZZP1032F)
- Inbusschlüssel (M2,0)

(1) MECHANISCHE EINSTELLUNG

1. Die Sonde CH1 des Oszilloskops über **TP703** (+) und **TP701** (−) an die Servo-Platine anschließen.
   Oszilloskopeinstellung:
   Spannung .... 200 mV
   Wobbel .... 0,5 µs
   Eingang .... WS
2. Den CD-Spieler **einschalten** und Titelnr. **5** der Test-Disc (SZZP1056C) spielen.
3. Stellen Sie die zwei mechanischen Einstellschrauben abwechselnd mit dem 2, 0-mm-Inbusschlüssel (SZZP1101C) so ein, daß die vertikale Fluktuation des HF-Signals so klein wie möglich und das Augenmuster so lang wie möglich ist.
4. Nach erfolgter Einstellung die Schrauben mit Farbe (RZZOL01) in Stellung sichern.

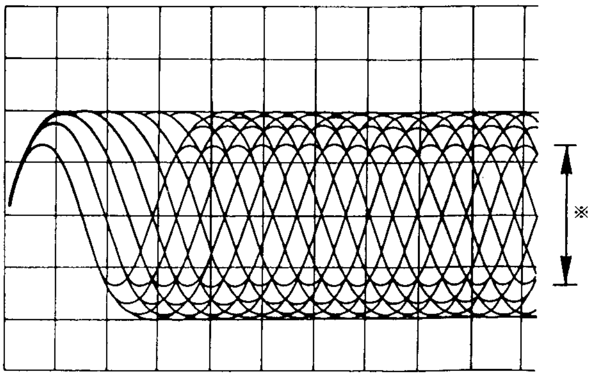




※Langgezogenes Augenmuster

(2) AUGENMUSTER-EINSTELLUNG

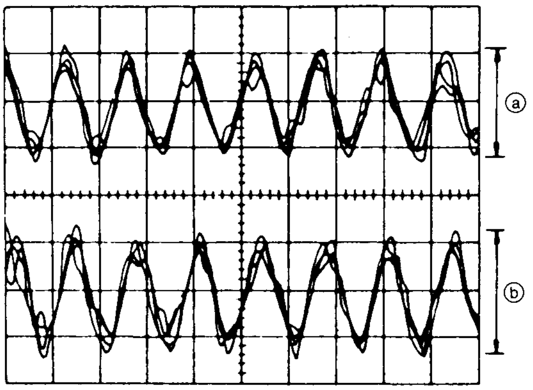
1. Die Sonde CH1 des Oszilloskops über **TP703** (+) und **TP701** (−) an die Servo-Platine anschließen.
   Oszilloskopeinstellung:
   Spannung .... 100 mV
   Wobbel .... 0,5 µs
   Eingang .... WS
2. Schalten Sie den CD-Spieler ein und spielen Sie den ersten Titel **(1 kHz)** der Test-Disc SZZP1054C.
3. Stellen Sie das Potentiometer **VR701** auf kleinstmögliche vertikale Fluktuation des HF-Signals und ein so weit wie möglich langgezogenes Augenmuster ein.



※Langgezogenes Augenmuster

(3) FOKUSVERSTÄRKUNGS-EINSTELLUNG

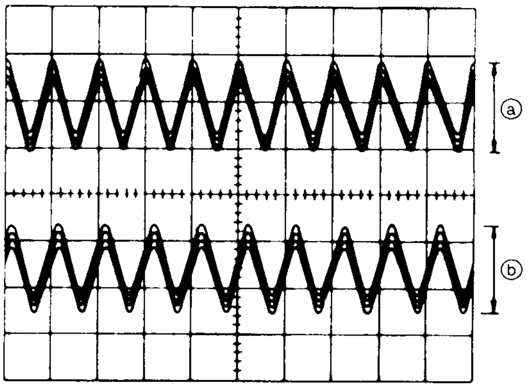
1. Den Servo-Verstärkungs-Einsteller an den CD-Spieler anschließen (siehe Seite 5).
2. Den Verstärkungsschalter des Servo-Verstärkungs-Einstellers auf „**3**“ setzen und den ON/OFF-Schalter auf **ON**.
3. Den Tonfrequenz-Oszillatorausgang für **1 kHz, 150 mVs-s** einstellen und über die OSC- und GND-Klemmen an den Servo-Verstärkungs-Einsteller anschließen.
4. Die Sonden CH1 und CH2 des Oszilloskops and die Prüfpunkte TP1 und TP2 des Servo-Verstärkungs-Einstellers anschließen.
   Sonde CH-1 (−) an Prüfpunkt TP3.
   Oszilloskopeinstellung:
   Spannung .... 100 mV (beide Kanäle)
   Wobbel .... 1 ms
   Eingang .... WS
5. Die Test-Disc (SZZP1014F oder SZZP1054C) spielen.
6. Den Verstärkungsschalter des Servo-Verstärkungs-Einstellers auf „**3**“ setzen, um ein 1-kHz-Signal auf das Oszilloskop zu legen. Mit dem Potentiometer **VR704** die Signalamplituden der beiden Kanäle gleichgroß machen.
7. Den Verstärkungsschalter des Servo-Verstärkungs-Einstellers zurück auf „**2**“ setzen.



*Mit **VR704** die Amplituden ⓐ und ⓑ gleichgroß machen.

(4) EINSTELLUNG DER SPURFOLGE-VERSTÄRKUNG

1. Den Tonfrequenz-Oszillatorausgang für **1 kHz, 150 mVs-s** einstellen und über die OSC- und GND-Klemmen an den Servo-Verstärkungs-Einsteller anschließen.
2. Die Sonden CH1 und CH2 des Oszilloskops and die Prüfpunkte TP1 und TP2 des Servo-Verstärkungs-Einstellers anschließen.
   Oszilloskopeinstellung:
   Spannung .... 100 mV (beide Kanäle)
   Wobbel .... 1 ms
   Eingang .... WS
3. Den CD-Spieler **einschalten** und die Test-Disc (SZZP1014F oder SZZP1054C) spielen.
4. Den Verstärkungsschalter des Servo-Verstärkungs-Einstellers auf „**1**“ setzen, um ein 1-kHz-Signal auf das Oszilloskop zu legen. Mit dem Potentiometer **VR705** die Signalamplituden der beiden Kanäle gleichgroß machen.
5. Den Verstärkungsschalter des Servo-Verstärkungs-Einstellers zurück auf „**2**“ setzen.

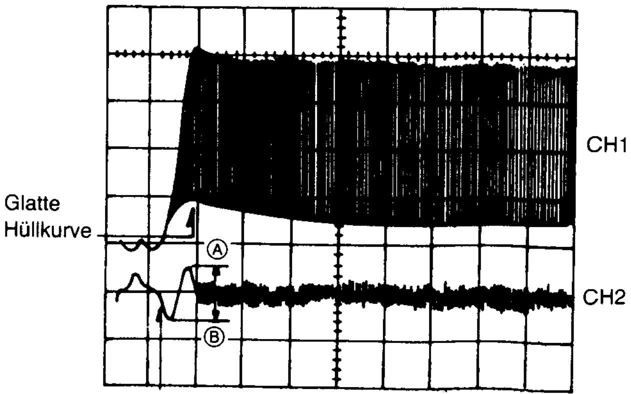


*Mit **VR705** die Amplituden ⓐ und ⓑ gleichgroß machen.

(5) FOKUSVERSATZ-EINSTELLUNG

Hinweis: Sicherstellen, daß der Verstärkungsschalter des Servo-Verstärkungs-Einstellers auf „**2**“ gesetzt ist.

1. Schließen Sie die Sonde CH-1 des Oszilloskops über **TP703** (+) und **TP701** (−) an die Servo-Platine an; Sonde CH-2 (+) an **TP704**.
   Oszilloskopeinstellung:
   Spannung .... 200 mV (CH1)
   1 V (CH2)
   Wobbel .... 1 ms
   Eingang .... WS (CH1 und CH2)
   Triggermodus .... Normal (Trigger CH1)
2. Den CD-Spieler **einschalten** und Titelnr. **9** der Test-Disc (SZZP1057C) spielen.
3. CH1 des Oszilloskops triggern, um die gezeigten Wellenformen zu erhalten. Mit **VR703** dafür sorgen, daß die Flanke der HF-Signal-Hüllkurve auf CH1 glatt und die Signalamplitude auf CH2 so klein wie möglich ist; Amplitude Ⓐ=Ⓑ.



Amplitude verkleinern, so daß Ⓐ=Ⓑ.

(6) EINSTELLUNG DES SPURFOLGE-VERSATZES

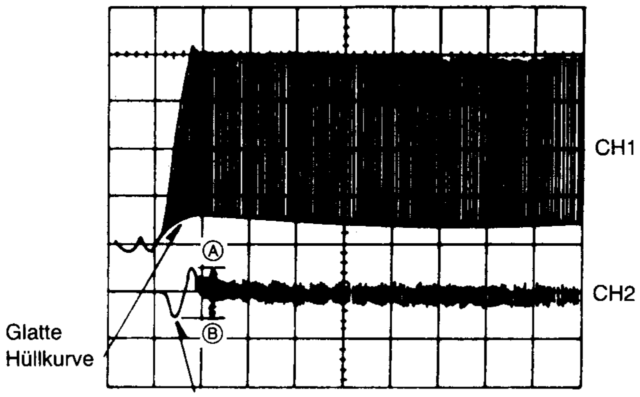
Hinweis: Sicherstellen, daß der Verstärkungsschalter des Servo-Verstärkungs-Einstellers auf „2" gesetzt ist.

1. Schließen Sie die Sonde CH-1 des Oszilloskops über TP703 (+) und TP701 (−) an die Servo-Platine an; Sonde CH-2 (+) an TP704.

   Oszilloskopeinstellung:

   Spannung .... 200 mV (CH1)
   1 V (CH2)
   Wobbel .... 1 ms
   Eingang .... WS (CH1 und CH2)
   Triggermodus .... Normal (Trigger CH1)

2. Den CD-Spieler **einschalten** und Titelnr. **9** der Test-Disc (SZZP1057C) spielen.
3. CH1 des Oszilloskops triggern, um die gezeigten Wellenformen zu erhalten. Mit **VR706** dafür sorgen, daß die Flanke der HF-Signal-Hüllkurve auf CH1 glatt und die Signalamplitude auf CH2 so klein wie möglich ist; Amplitude Ⓐ=Ⓑ.



Amplitude verkleinern, so daß Ⓐ=Ⓑ.

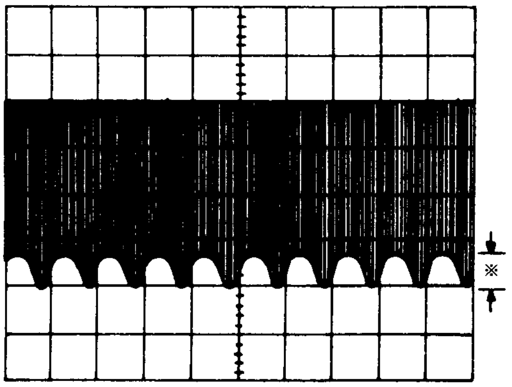
(7) EINSTELLUNG DES SPURFOLGE-GLEICHGEWICHTS

1. Sicherstellen, daß der Verstärkungsschalter des Servo-Verstärkungs-Einstellers auf „2" gesetzt ist.
2. Den Tonfrequenz-Oszillatorausgang für **1 kHz, 150 mVs-s** einstellen und über die OSC- und GND-Klemmen an den Servo-Verstärkungs-Einsteller anschließen.
3. Die Sonde CH1 des Oszilloskops über TP703 (+) und TP701 (−) der Servo-Platine und die Sonde CH2 (+) über die OSC-Klemme an den Servo- Verstärkungs-Einsteller anschließen.

   Oszilloskopeinstellung:

   Spannung .... 100 mV (CH1)
   Wobbel .... 1 ms
   Eingang .... WS (CH1 und CH2)
   Triggermodus .... Normal (Trigger CH2)

4. Den CD-Spieler **einschalten** und die Test-Disc (SZZP1014F oder SZZP1054C) spielen.
5. Das Potentiometer **VR702** so einstellen, daß der Ausgang der mit „※" markierten Wellenform ausgeglichen ist.
6. Die Leitungsdrähte des Servo-Verstärkungs-Einstellers vom CD-Spieler trennen.



Dieser Abschnitt der Wellenform muß im Gleichgewicht sein.

■ BETRIEBSPRÜFUNG NACH ERFOLGTER EINSTELLUNG

·Titel-Übersprung

1. Eine normale Musik-CD spielen.
2. Durch Betätigen der Titel-Übersprung-Tasten prüfen, ob der Suchlauf in Vor-und Rückwärtsrichtung einwandfrei arbeitet.

·Manueller Suchlauf

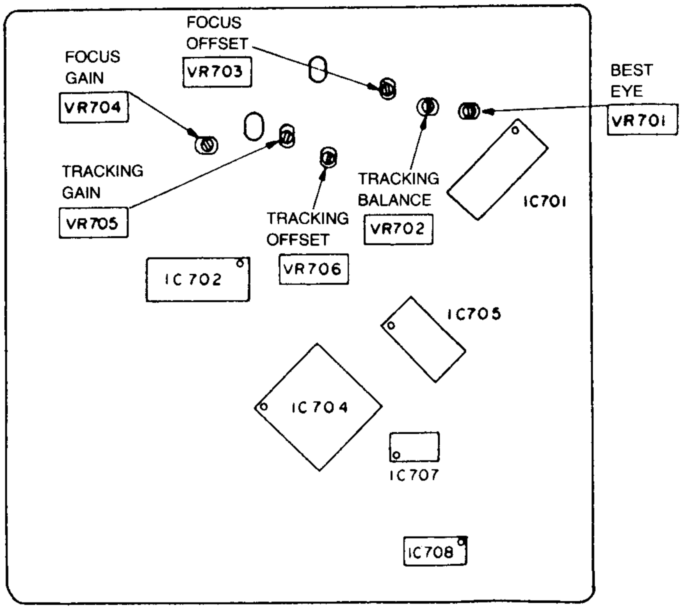
1. Eine normale Musik-CD spielen.
2. Durch Betätigen der Manual-Such-Tasten prüfen, ob der Suchlauf in mehrfacher Normalgeschwindigkeit (in Vor- und Rückwärtsrichtung) einwandfrei arbeitet.

·Spielen einer Test-Disc

1. Auf der Test-Disc (SZZP1054C) die Stelle mit dem 0,7-mm-Schwarzloch und der 0,7-mm-Kerbe spielen und sicherstellen, daß weder Tonausfall noch Störgeräusche auftreten.
2. Die mittleren Spuren der ungleichmäßigen Test-Disc spielen und sicherstellen, daß weder Tonausfall noch Störgeräusche auftreten.

■ JUSTIERPUNKTE

- Zur Lokalisierung der Testpunkte beziehen Sie sich bitte auf den Leiterplatten-Schaltplan.



FRANÇAIS

■ MESURE ET REGLAGE

<SECTION TUNER>

•INSTRUCTIONS DE REGLAGE

A LIRE ATTENTIVEMENT AVANT DE COMMENCER LE REGLAGE

- •Régler la tension d'alimentation sur 15 V c.c.
- •Mettre l'interrupteur marche/arrêt sur ON.
- •Mettre le sélecteur de fonction sur TUNER/MW ou LW.
- •Amener la commande de volume au centre.
- •Amener la commande de tonalité au centre.
- •La sortie du générateur de signaux doit être juste suffisante pour obtenir une lecture de sortie.

•REGLAGE MW-RF

(Les pièces autres que celles indiquées ci-dessous sont préréglées à l'usine. Leur réglage est donc inutile lorsqu'elles servent au remplacement.)

GENERATEUR DE SIGNAL ou GENERATEUR DE BALAYAGE		REGLAGE DU BOUTON RADIO	INDICATEUR (VOLTMETRE ELECTRONIQUE ou OSCILLOSCOPE)	REGLAGE (Voir la Fig. 1.)	REMARQUES
RACCORDEMENT	FREQUENCE				
Former une boucle de plusieurs tours de fils, et envoyer le signal dans l'antenne-cadre du récepteur.	594 kHz	Accorder le signal.	Jack téléphonique (32Ω) (Fabriquer une fiche comme le montre la Fig. 2, puis raccorder ses conducteurs à l'instrument de mesure.)	(*1) L5-1 (Bobine MW ANT)	Régler à la puissance de sortie maximale. Régler L5-1 en déplaçant la bobine le long du noyau de ferrite.
″	1.503 kHz	″	″	CT1 (condensateur d'équilibre MW ANT)	Régler à la puissance de sortie maximale.
(*1) Fixer la bobine d'antenne à la cire après le réglage.					

•REGLAGE LW-RF

GENERATEUR DE SIGNAL ou GENERATEUR DE BALAYAGE		REGLAGE DU BOUTON RADIO	INDICATEUR (VOLTMETRE ELECTRONIQUE ou OSCILLOSCOPE)	REGLAGE (Voir la Fig. 1.)	REMARQUES
RACCORDEMENT	FREQUENCE				
Former une boucles de plusieurs tours de fils, et envoyer le signal dans l'antenne-cadre du récepteur.	162 kHz	Accorder le signal.	Jack téléphonique (32Ω) (Fabriquer une fiche comme le montre la Fig. 2, puis raccorder ses conducteurs à l'instrument de mesure.)	(*2) L5-2 (Bobine LW ANT)	Régler à la puissance de sortie maximale. Régler L5-2 en déplaçant la bobine le long du noyau de ferrite.
″	270 kHz	″	″	CT2 (condensateur d'équlibre LW ANT)	Régler à la puissance de sortie maximale.
(*2) Fixer la bobine d'antenne à la cire après le réglage.					

<SECTION LECTEUR DE CASSETTES>

•INSTRUCTIONS DE REGLAGE

A LIRE ATTENTIVEMENT AVANT DE COMMENCER LE REGLAGE.

- •Régler la tension d'alimentation à 15 V c.c.
- •Mettre l'interrupteur marche/arrêt sur ON.
- •Mettre le sélecteur de fonction sur TAPE.
- •Amener la commande de volume au centre.
- •Amener la commande de tonalité au centre.
- •La puissance de sortie du générateur de signaux doit être juste suffisante pour obtenir une lecture de sortie.

•REGLAGE D'AZIMUT DE LA TETE

BANDE D'ESSAI	INDICATEUR (VOLTMETRE ELECTRONIQUE ou OSCILLOSCOPE)	REGLAGE	SPECIFICATION	REMARQUE
QZZCFM (8 kHz, −20 dB)	Jack téléphonique (32Ω) (Fabriquer une fiche comme l'indique la Fig. 2, puis raccorder ses conducteurs à l'instrument de mesure.)	Vis d'azimut (Voir la Fig. 3.)	Puissance de sortie maximale	1. Mode de lecture 2. Régler à la puissance de sortie maximale.

•REGLAGE DE LA VITESSE DE DEFILEMENT DE LA BANDE

CASSETTE D'ESSAI	INDICATEUR (VOLTMETRE ELECTRONIQUE ou OSCILLOSCOPE)	REGLAGE	SPECIFICATION	REMARQUES
QZZCWAT (3 kHz, −10 dB)	Jack téléphonique (32Ω) (Fabriquer une fiche comme l'indique la Fig. 2, puis raccorder ses conducteurs à l'instrument de mesure.)	Moteur VR (Voir la Fig. 4)	3000±90 Hz	1. Mode de lecture 2. Régler le moteur VR jusqu'à ce que l'indicateur de fréquence indique 3000+/−90 Hz.

•CONTROLE DE FOYER ENREGISTRE

CASSETTE D'ESSAI	INDICATEUR (VOLTMETRE ELECTRONIQUE ou OSCILLOSCOPE)	REGLAGE	SPECIFICATION	REMARQUE
Utiliser une cassette à bande normale.	TP1 ...(+) TP2 ...(−) (Voir la Fig. 5.)	——	Bande normale ...13±1 mV	•Mode d'enregistrement

•POINT DE REGLAGE

Se reporter au Diagramme des plaquettes de circuit imprimé et de câblage pour la localisation des points d'essai.

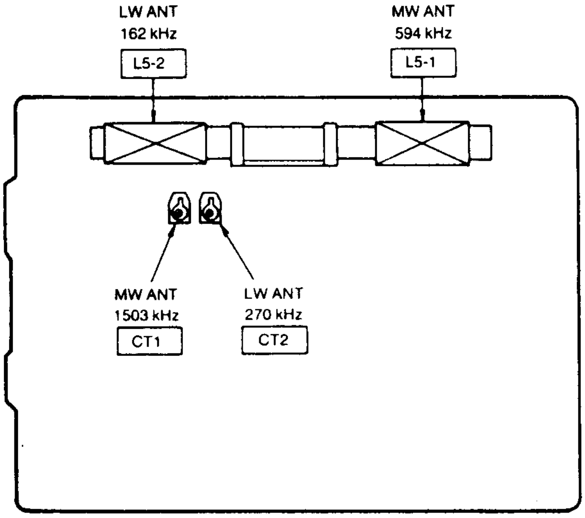

LW ANT
162 kHz
L5-2
MW ANT
594 kHz
L5-1
MW ANT
1503 kHz
CT1
LW ANT
270 kHz
CT2

Fig. 1

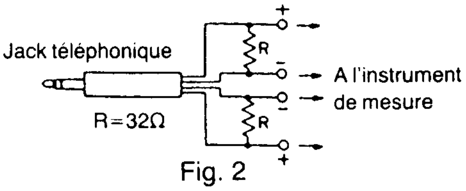

Jack téléphonique
R=32Ω
R
R
+
−
−
+
A l'instrument
de mesure

Fig. 2

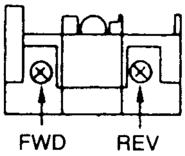


Fig. 3

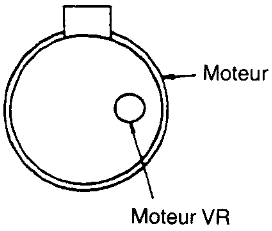
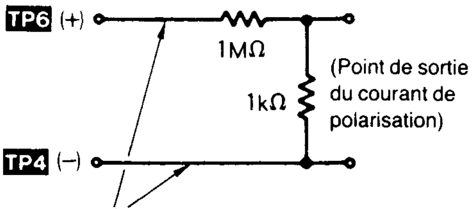

Moteur
Moteur VR

Fig. 4


TP6 (+)
TP4 (−)
1MΩ
1kΩ
(Point de sortie
du courant de
polarisation)

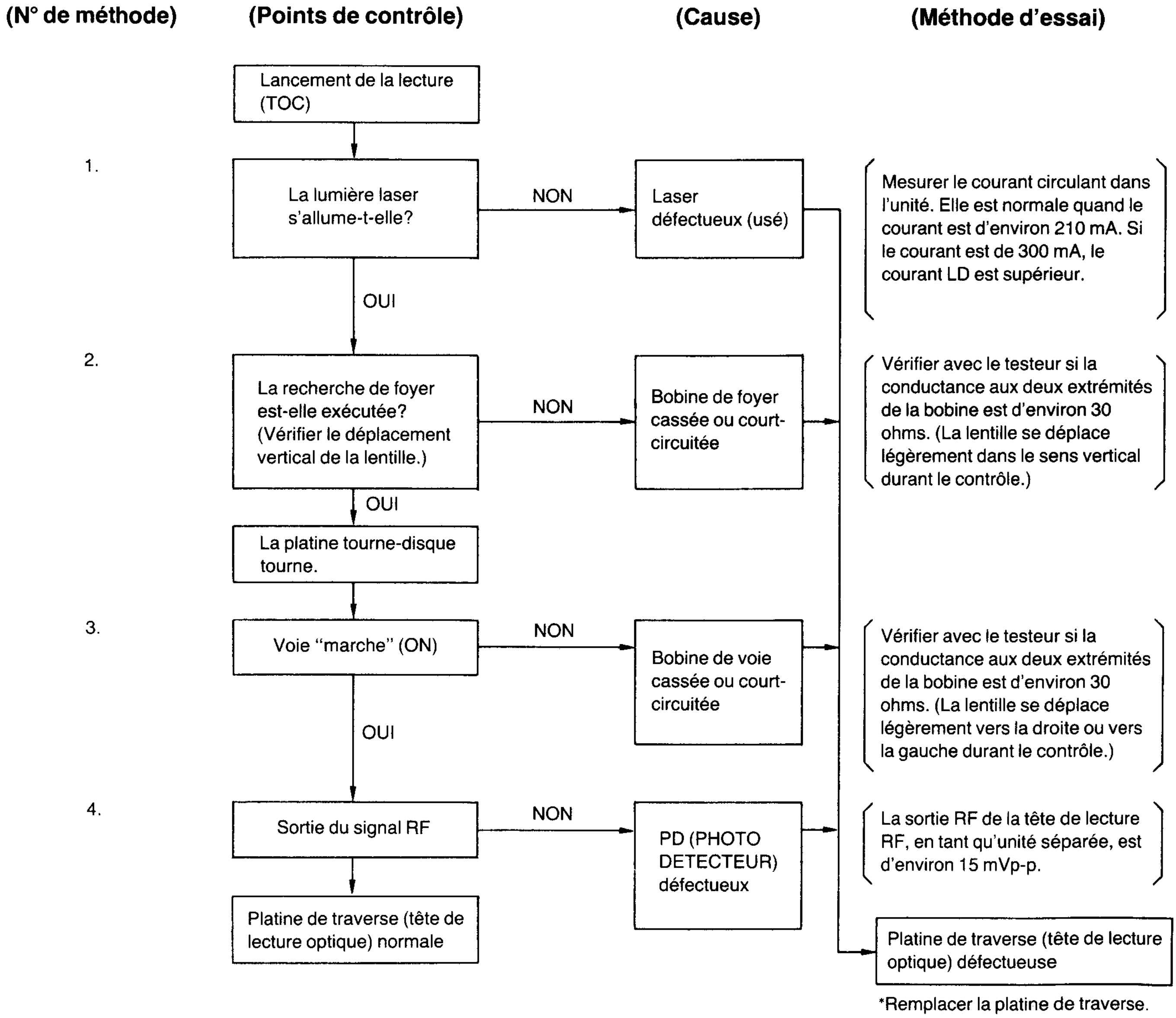
Laisser ces cordons court-circuités.
(Capacitance de ligne: 3 pF ou moins)

- Pour ne pas influencer l'oscillation de polarisation, diviser la tension avec des résistances de 1 MΩ et 1 kΩ, et mesurer la tension à la résistance 1 kΩ.

Fig. 5

■ CONTROLE DES PROBLEMES DE FONCTIONNEMENT DE LA PLATINE DE TRAVERSE (TETE DE LECTURE OPTIQUE)

Suivre la méthode indiquée ci-dessous pour contrôler les problèmes de fonctionnement de la platine de traverse (tête de lecture optique) avant son remplacement. Ne la remplacer qu'une fois le problème identifié.


(N° de méthode)
(Points de contrôle)
(Cause)
(Méthode d'essai)
Lancement de la lecture (TOC)
1.
La lumière laser s'allume-t-elle?
NON
Laser défectueux (usé)
OUI
2.
La recherche de foyer est-elle exécutée? (Vérifier le déplacement vertical de la lentille.)
NON
Bobine de foyer cassée ou court-circuitée
OUI
La platine tourne-disque tourne.
3.
Voie "marche" (ON)
NON
Bobine de voie cassée ou court-circuitée
OUI
4.
Sortie du signal RF
NON
PD (PHOTO DETECTEUR) défectueux
Platine de traverse (tête de lecture optique) normale
Platine de traverse (tête de lecture optique) défectueuse

1. Mesurer le courant circulant dans l'unité. Elle est normale quand le courant est d'environ 210 mA. Si le courant est de 300 mA, le courant LD est supérieur.
2. Vérifier avec le testeur si la conductance aux deux extrémités de la bobine est d'environ 30 ohms. (La lentille se déplace légèrement dans le sens vertical durant le contrôle.)
3. Vérifier avec le testeur si la conductance aux deux extrémités de la bobine est d'environ 30 ohms. (La lentille se déplace légèrement vers la droite ou vers la gauche durant le contrôle.)
4. La sortie RF de la tête de lecture RF, en tant qu'unité séparée, est d'environ 15 mVp-p.

*Remplacer la platine de traverse.

- Vérifier le circuit électrique.
- Lecteur CD mal ajusté. Le régler à nouveau.
  - (1) Réglage mécanique
  - (2) Réglage de la meilleure mire (balance PD)
  - (3) Réglage du gain de foyer
  - (4) Réglage du gain de voie
  - (5) Réglage du décalage de foyer
  - (6) Réglage du décalage de voie
  - (7) Réglage de balance de voie

  Voir les pages 13 à 16.
- Vérifier qu'il n'y a pas de défaut sur le disque, qu'il n'est ni voilé ni décentré.

•Contrôle du fonctionnement de la platine de traverse de remplacement (nouvelle platine de traverse)

a) Vérifier les points ci-dessous sur la nouvelle platine de traverse après le remplacement.

∗ Contrôle de la recherche par sauts

1. Lire un disque de programme musical ordinaire.
2. Appuyer sur la touche de saut pour contrôler le fonctionnement normal de la recherche par sauts (à la fois en avant et en arrière).

∗ Contrôle de la recherche manuelle

1. Lire un disque de programme musical ordinaire.
2. Appuyer sur la touche de recherche manuelle pour contrôler le fonctionnement normal de la recherche manuelle à vitesse réduite ou élevée (à la fois en avant et en arrière).

∗ Contrôle avec un disque d'essai défectueux

1. Lire le point noir de 0,7 mm et le coin de 0,7 mm du disque d'essai défectueux (SZZP1054C) et vérifier qu'il ne se produit aucun saut sonore ou bruit.
2. Lire les voies centrales du disque d'essai inégal (SZZP1058C), et vérifier qu'il ne se produit aucun saut sonore ou bruit.

b) Si le fonctionnement est normal, le réglage du lecteur CD est inutile après le remplacement de la platine de traverse.

Remarque: Le réglage du lecteur CD est nécessaire dans les cas ci-dessous. (Tout réglage mécanique est inutile.) (Voir l'item 2~7 aux pages 13 à 16.)

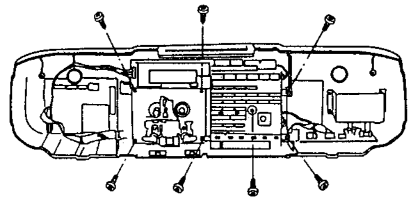
- •Si le programme musical n'est pas lu en continu ou si du bruit apparaît après l'exécution de l'étape (a).
- •Si les VR de réglage (VR701~VR706) ont été tournés avant le remplacement de la platine de traverse.
- •Si les CI du circuit du servorégleur ou les VR de réglage ont été remplacés.

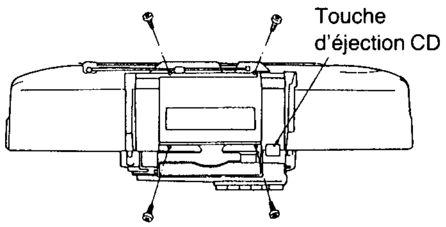
<SECTION LECTEUR CD>

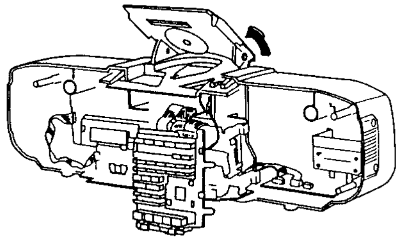
Précaution:

- Il est très dangereux de regarder ou de toucher ce rayon laser. (Le rayonnement laser est invisible.)
  Quand l'appareil est sous tension, la lentille de la tête de lecture émet un rayon laser.
  Eviter toute exposition au rayon laser, surtout lors du réglage.

1. Déposer l'avant du coffret. (Voir les instructions de démontage, Réf. 2.)



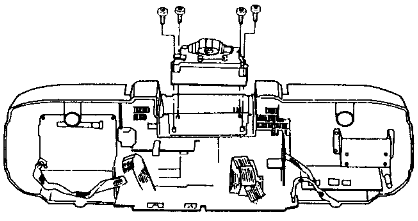

Touche
d'éjection CD



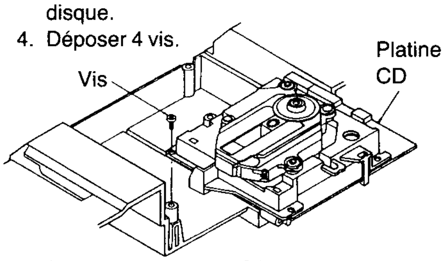
2. Déposer les 7 vis, puis la plaquette de circuit imprimé du commutateur, le mécanisme et le châssis.

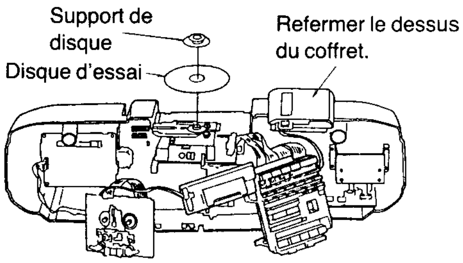
3. Appuyer sur la touche d'éjection CD, puis ouvrir le cache du logement disque.

5. Retirer le dessus de coffret dans la direction de la flèche.



4. Déposer 4 vis.

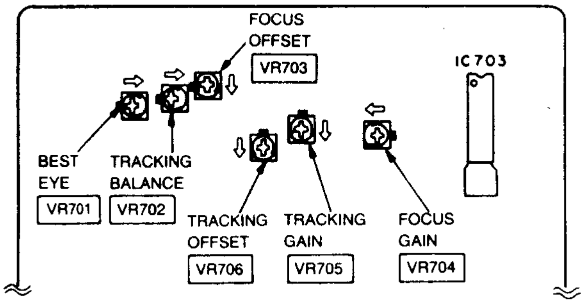

Vis
Platine
CD


Support de
disque
Disque d'essai
Refermer le dessus
du coffret.

6. Déposer les 4 vis, puis la platine CD.

7. Assembler la platine CD.

•REGLAGE TEMPORAIRE DES VR


FOCUS
OFFSET
VR703
IC703
BEST
EYE
VR701
TRACKING
BALANCE
VR702
TRACKING
OFFSET
VR706
TRACKING
GAIN
VR705
FOCUS
GAIN
VR704

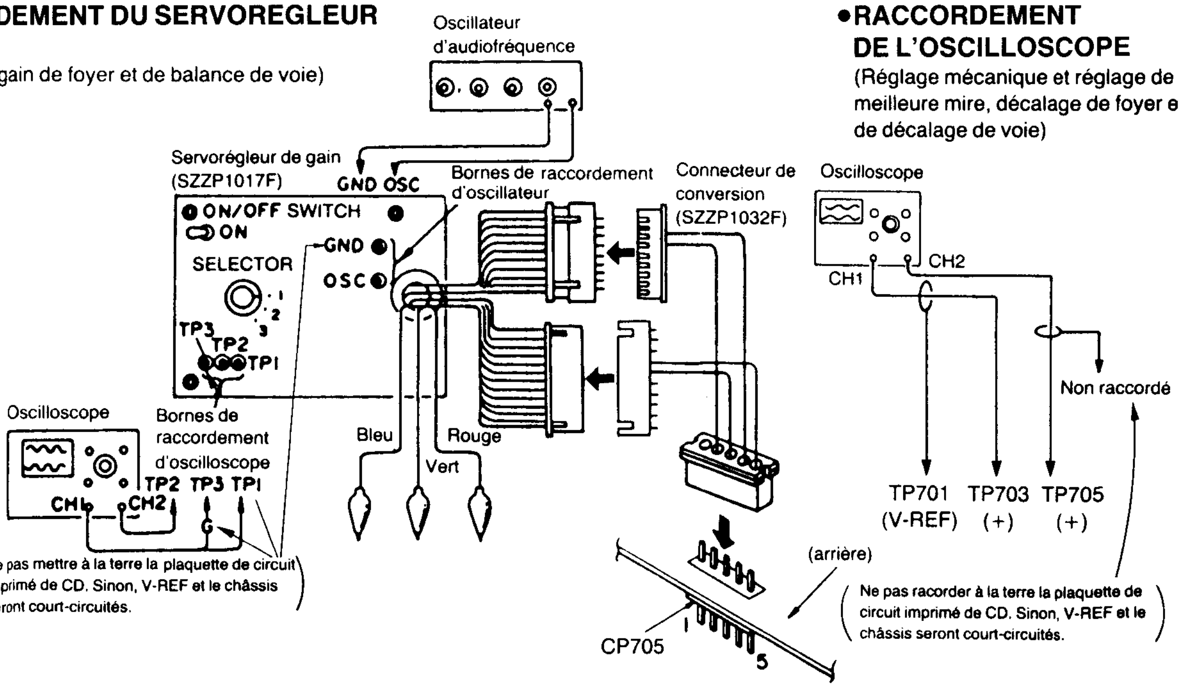
- La rotation excessive de VR704 arrête celle de la platine tourne-disque durant le réglage du gain de foyer. Si la position initiale ne peut pas être déterminée, chercher la position à laquelle VR commence à tourner en le tournant lentement dans le sens des aiguilles d'une montre ou en sens inverse à partir du centre mécanique (flèches sur la figure de gauche), puis recommencer la procédure de réglage.
- Si les VR sont tous tournés ou remplacés, les régler à leur position initiale. Si la position initiale est inconnue, les placer à leur position centrale, et recommencer le réglage.

•RACCORDEMENT DU SERVOREGLEUR DE GAIN

(Réglage du gain de foyer et de balance de voie)

•RACCORDEMENT DE L'OSCILLOSCOPE

(Réglage mécanique et réglage de la meilleure mire, décalage de foyer et de décalage de voie)


Oscillateur
d'audiofréquence
Servorégleur de gain
(SZZP1017F)
GND OSC
ON/OFF SWITCH
ON
SELECTOR
1
2
3
GND
OSC
TP3
TP2
TP1
Bornes de raccordement
d'oscillateur
Connecteur de
conversion
(SZZP1032F)
Oscilloscope
CH1
CH2
Non raccordé
Oscilloscope
Bornes de
raccordement
d'oscilloscope
TP2 TP3 TP1
CH1
CH2
Bleu
Rouge
Vert
TP701
(V-REF)
TP703
(+)
TP705
(+)
(arrière)
CP705
1
5

(Ne pas mettre à la terre la plaquette de circuit imprimé de CD. Sinon, V-REF et le châssis seront court-circuités.)

(Ne pas racorder à la terre la plaquette de circuit imprimé de CD. Sinon, V-REF et le châssis seront court-circuités.)

Précaution:

1. Durant le réglage, ne pas raccorder le GND de la sonde de la voie 2 (CH. 2), cela pourrait provoquer le court-circuitage de la ligne V-REF. (Raccorder le GND de la sonde de la voie 1 (CH. 1) au TP. spécifié dans chaque section.)
2. TP3 et la borne GND de SZZP1017F, ainsi que TP4 du châssis du SZZP1017F ont le même potentiel V-REF.

Instruments de mesure et outils spéciaux

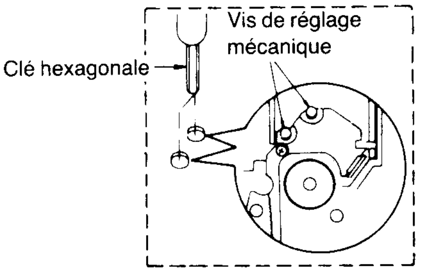
- Servorégleur de gain (SZZP1017F ou SZZP1094C)
- Disques d'essai
  1. Disque d'essai de possibilité de lecture (SZZP1054C OU SZZP1014F)
  2. Disque d'essai d'inégalité (SZZP1056C)
  3. Disque d'essai de bande noire (SZZP1057C)
- Disque normal
- Oscilloscope double trace avec une largeur de bande de 30 MHz ou plus (avec déclencheur EXT et sonde 1:1)
- Connecteur de conversion (SZZP1032F)
- Clé hexagonale (M2,0)

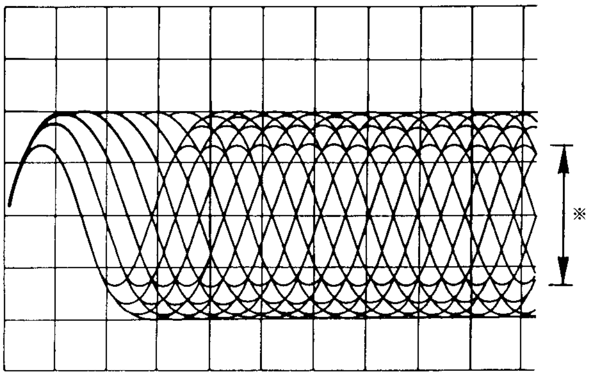
(1) REGLAGE MECANIQUE

1. Raccorder la sonde CH.1 de l'oscilloscope entre **TP703** (+) et **TP701** (−) de la plaquette de circuit imprimé de servo. servo.

   Réglage de l'oscilloscope:

   Tension (VOLT) .... 200 mV
   Dent de scie (SWEEP) .... 0,5 μsec.
   Couplage d'entrée .... courant alternatif
2. Mettre le lecteur de disque sur la position "marche" **(ON)**, et lire la piste **9** du disque d'essai (SZZP1056C).
3. Régler alternativement les deux vis de réglage mécanique avec une clé Allen 2,0 mm (SZZP1101C) jusqu'à ce que la fluctuation verticale du signal RF soit minimale et que l'étirement du motif de la mire soit maximal.
4. Après le réglage, verrouiller les réglages mécaniques avec à la peinture de blocage (RZZ0L01).





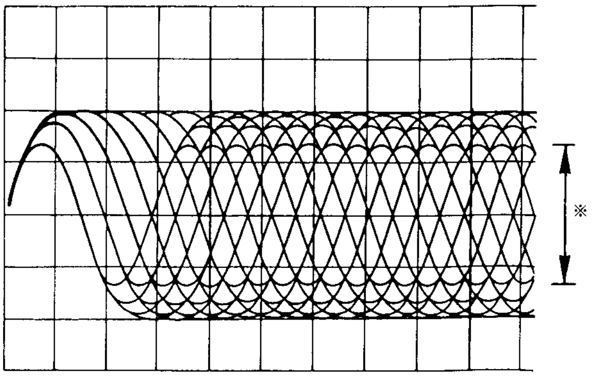
※Etirement maximal du motif de la mire

(2) RÉGLAGE DE LA MEILLEURE MIRE (BALANCE PD)

1. Raccorder les bornes **TP703** (+) et **TP701** (−) de la sonde de voir 1 (CH. 1) de l'oscilloscope sur la plaquette de circuit imprimé de servo.

   Réglage de l'oscilloscope:

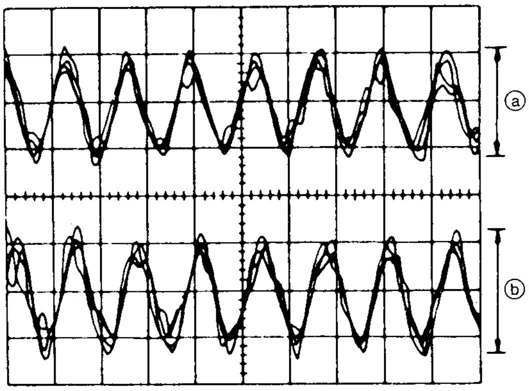
   Tension (VOLT) .... 100 mV
   Dent de scie (SWEEP) .... 0,5 μsec.
   Couplage d'entrée .... courant alternatif
2. Mettre le lecteur sur la position "marche" (ON), et lire **1 kHz** (voie 1) sur le disque d'essai (SZZP1054C).
3. Régler **VR701** jusqu'à ce que la fluctuation verticale du signal RF soit minimale et que l'étirement du motif de la mire soit maximal.



※Etirement maximal du motif de la mire

(3) RÉGLAGE DU GAIN DE FOYER

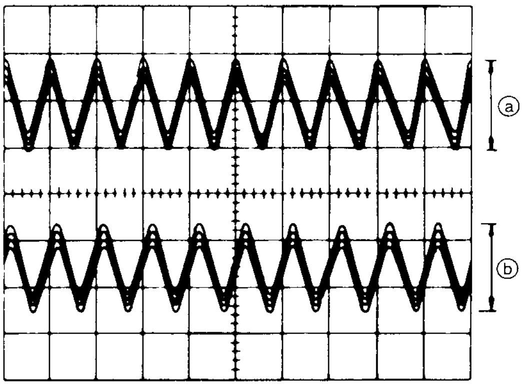
1. Raccorder le servorégleur de gain au lecteur de disques (voir la page 13).
2. Mettre le commutateur de gain du servorégleur de gain sur la position "**3**" et l'interrupteur marche/arrêt sur la position marche "**ON**".
3. Régler la puissance de sortie de l'oscilloscope à 1 kHz, 150 mVp-p, et raccorder les bornes OSC (oscilloscope) et GND (terre) de ce dernier sur le servorégleur de gain.
4. Racorder respectivement les sondes de la voie 1 (CH.1) et de la voie 2 (CH.2) de l'oscilloscope aux bornes TP1 et TP2 du servorégleur de gain.
   Sonde CH1 (−) à la borne TP3
   Réglage de l'oscilloscope:
   Tension (VOLT) .... 100 mV (pour les deux voies)
   Dent de scie (SWEEP) .... 1 msec.
   Couplage d'entrée .... courant alternatif
5. Lire le disque d'essai (SZZP1014F ou SZZP1054C).
6. Mettre le commutateur de gain du servorégleur de gain sur la position "**3**". Un signal de 1 kHz sera alors observé sur l'oscilloscope. Régler **VR704** jusqu'à ce que l'amplitude de signaux des deux voies soit la même.
7. Remettre le commutateur de gain sur la position "**2**".



*Régler **VR704** jusqu'à ce que ⓐ et ⓑ soient égaux.

(4) RÉGLAGE DU GAIN DE PISTE

1. Régler la puissance de sortie de l'oscilloscope pour l'audiofréquence sur 1 kHz, 150 mVp-p, et raccorder les bornes OSC (oscilloscope) et GND (terre) de ce dernier sur le servorégleur de gain.
2. Raccorder respectivement les sondes de la voies 1 (CH.1) et de la voies 2 (CH.2) aux bornes TP1 et TP2 du servorégleur de gain.
   Réglage de l'oscilloscope:
   Tension (VOLT) .... 100 mV (pour les deux voies)
   Dent de scie (SWEEP) .... 1 msec.
   Couplage d'entrée .... courant alternatif
3. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer la lecture du disque d'essai (SZZP104F ou SZZP1054C).
4. Mettre le commutateur de gain du servorégleur de gain sur la position "**1**". Un signal de 1,1 kHz sera alors observé sur l'oscilloscope. Régler **VR705** jusqu'à ce que l'amplitude de signaux des deux voies soit égale.
5. Remettre le commutateur de gain sur la position "**2**".

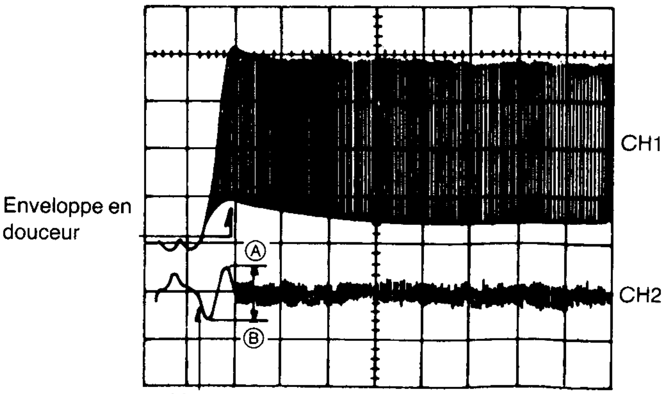


*Régler **VR705** jusqu'à ce que ⓐ et ⓑ soient égaux.

(5) RÉGLAGE DU DÉCALAGE DE FOYER

Remarque: Vérifier que le commutateur de gain du servorégleur de gain est bien sur la position "**2**".

1. Raccorder les bornes TP703 (+) et TP701 (−) de la sonde de la voie 1 (CH. 1) de l'oscillospe sur la plaquette de circuit imprimé du servorégleur, et raccorder également la sonde (+) de la voie 2 (CH. 2) à TP704.
   Réglage de l'oscilloscope:
   Tension (VOLT) .... 200 mV (CH.1)
   1 V (CH.2)
   Dent de scie (SWEEP) .... 1 msec.
   Couplage d'entrée .... courant alternatif
   (pour les deux voies CH.1 et CH.2)
   Mode de déclenchement.................... NORM
   (voie 1 de déclenchement)
2. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer la lecture de la voie **9** du disque d'essai (SZZP1057C).
3. Déclencher la voie 1 (CH.1) de l'oscilloscope pour que les formes d'onde suivantes soient observées. Régler **VR703** de sorte que l'inclinaison dans l'enveloppe de signaux de radiofréquence sur la voie 1 (CH.1) soit douce, et que l'amplitude de signaux de la voie 2 (CH.2) soit minimisée, c'est-à-dire que l'amplitude Ⓐ soit égale à l'amplitude Ⓑ.



Minimiser l'amplitude pour obtenir Ⓐ=Ⓑ.

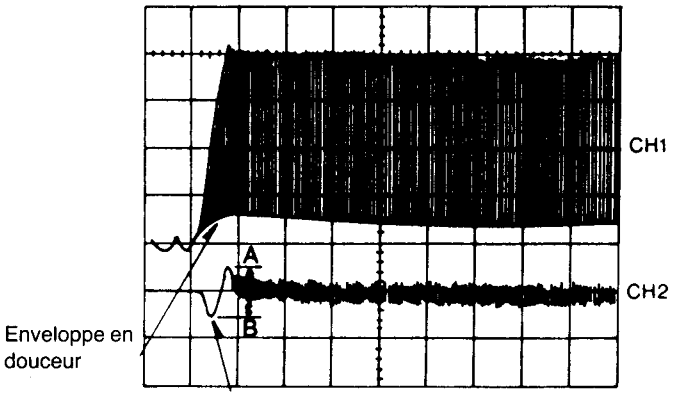
(6) RÉGLAGE DE DÉCALAGE DE VOIE

Remarque: Vérifier que le commutateur de gain du servorégleur de gain est bien sur la position **"2"**.

1. Raccorder les bornes **TP703** (+) et **TP701** (−) de la sonde de la voie 1 (CH. 1) de l'oscillospe sur la plaquette de circuit imprimé du servorégleur, et raccorder également la sonde (+) de la voie 2 (CH. 2) à **TP704** .

   Réglage de l'oscilloscope:

   Tension (VOLT) .... 200 mV (voie 1)
   1 V (voie 2)
   Dent de scie (SWEEP) .... 1 msec.
   Couplage d'entrée .... courant alternatif
   (pour les deux voies)
   Mode de déclenchement.................... NORM
   (voie 1 de déclenchement)
2. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer la lecture de la voie 9 du disque d'essai (SZZP1057C).
3. Déclencher la voie 1 (CH.1) de l'oscilloscope pour que les formes d'onde suivantes soient observées. Régler **VR706** jusqu'à ce que l'inclinaison dans l'enveloppe de signaux de radiofréquence sur la voie 1 (CH.1) soit douce, et que l'amplitude de signaux de la voie 2 (CH.2) soit minimisée, c'est-à-dire que les amplitudes A et B soient égales.



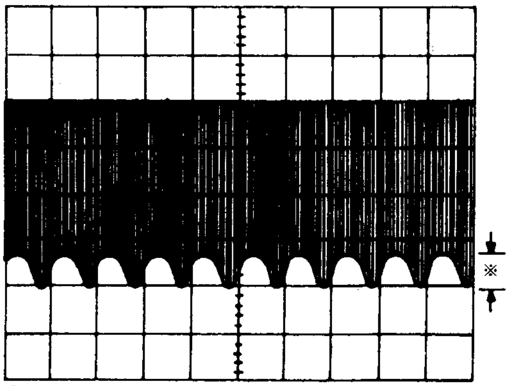
Minimiser l'amplitude pour obtenir A=B.

(7) RÉGLAGE DE BALANCE DE VOIE

1. Vérifier que le commutateur de gain du servorégleur de gain est bien sur la position **"2"**.
2. Régler la puissance de sortie de l'oscilloscope pour audiofréquences sur **1 kHz, 150 mVp-p**, et raccorder les bornes OSC (oscilloscope) et GND (terre) de ce dernier sur le servorégleur de gain.
3. Raccorder la borne **TP703** (+) de la sonde de voie 1 (CH.1) de l'oscilloscope et la borne **TP701** (−) sur la plaquette de circuit imprimé de servo, et également la sonde de voie 2 (CH. 2) et la borne OSC sur le servorégleur de gain.

   Réglage de l'oscilloscope:

   Tension (VOLT) .... 100 mV (voie 1)
   Dent de scie (SWEEP) .... 1 msec.
   Couplage d'entrée .... courant alternatif
   (pour les deux voies)
   Mode de déclenchement.................... NORM
   (voie 2 de déclenchement)
4. Mettre le lecteur de disques sur la position "marche" **(ON)**, et commencer la lecture du disque d'essai (SZZP1014F ou SZZP1054C).
5. Régler **VR702** de sorte que la section de sortie de la forme d'onde marquée d'un "※" soit équilibrée.
6. Débrancher les conducteurs du servorégleur de gain du lecteur.



Cette section de la forme d'onde doit être équilibrée.

■ Contrôle du fonctionnement de la lecture après réglage

·Contrôle de la recherche par sauts

1. Lire un disque de programme musical ordinaire.
2. Appuyer sur la touche de saut pour contrôler le fonctionnement normal de la recherche par sauts (à la fois en avant et en arrière).

·Contrôle de la recherche manuelle

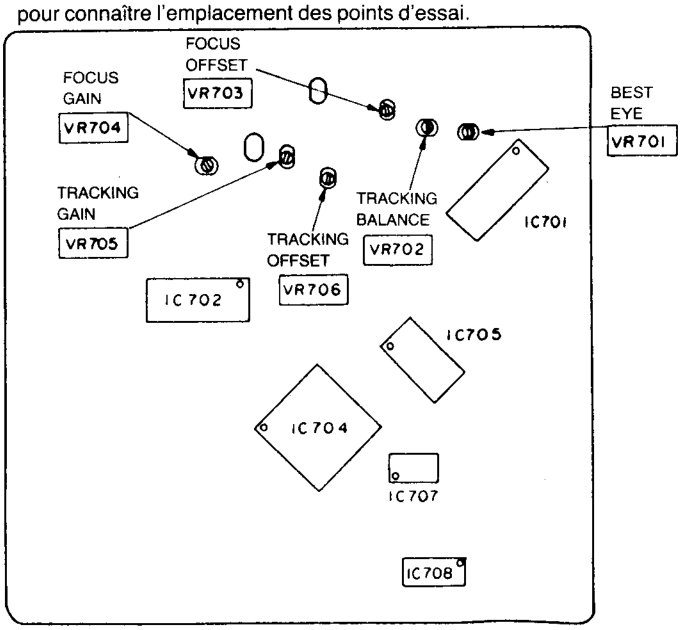
1. Lire un disque de programme musical ordinaire.
2. Appuyer sur la touche de recherche manuelle pour contrôler le fonctionnement normal de la recherche manuelle à vitesse réduite ou élevée (à la fois en avant et en arrière).

·Contrôle de l'utilisation d'un disque défectueux

1. Lire le point noir de 0,7 mm et le coin de 0,7 mm sur le disque d'essai défectueux (SZZP1054C), et vérifier qu'il ne se produit aucun saut sonore ou bruit.
2. Lire les voies du milieu du disque d'essai inégal, et vérifier qu'il ne se produit aucun saut sonore ou bruit.

■ POINT DE RÉGLAGE

- Se reporter au Diagramme des plaquettes de circuit et de câblage pour connaître l'emplacement des points d'essai.



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